Bureau Glossary of Terms for Automated Data Processing

Steven S. Barrell
Robert Woerner, Editor

Information Resources Management
Service Center
Bureau of Land Management
U.S. Department of the Interior
Denver Federal Center
P.O. Box 25047
Denver, Colorado 80225-0047

December 8, 1989

Preface

In 1988 the Director assigned the development and preparation of a <u>Bureau Glossary of Terms for Automated Data Processing (ADP)</u> in Washington Office Instruction Memorandum 88-282, dated March 7, 1988, to the Service Center. State Offices and Bureau Workgroups were encouraged to send their various glossary items to the Service Center for consolidation into the <u>Bureau Glossary</u>.

The present document integrates the information supplied by the State Offices and Bureau Workgroups during the consolidation effort between 1988-1989. The <u>Bureau Glossary</u> is structurally divided into a <u>BLM ADP Glossary</u> and <u>BLM Acronyms</u>.

The <u>Bureau Glossary</u> is a dynamic document; it is the intent of the Service Center to provide annual updates. If in using this document you find the need to recommend changes please use a copy of the <u>Document Review Form</u> which can be found at the end of the <u>Bureau Glossary</u> to record and forward your recommended change(s). Any term(s) or acronym(s) you propose for addition must be accompanied by an appropriate definition(s). Please direct proposed changes or updates to the Chief, Branch of Target Systems Implementation (SC-311), Service Center.

i

Abort

To terminate a process prior to completion.

Absolute Spatial Accuracy

A quantitative measure of the accuracy of a machine-readable representation of the earth's surface. A measure of absolute accuracy is often represented as the distance (in feet, meters, etc.) between the actual earth location of a feature and the estimated location of the feature on a spatial data base. Developers of spatial data bases should be aware of the accuracy requirements for a set of information and should provide appropriate data input procedures that meet targeted accuracy criteria. Current national standards efforts are defining acceptable quantitative methods that will measure the accuracy levels of spatial data bases and will provide a national standard for these data bases and the requirements of particular applications.

Absolute Title

As applied to title to land, an exclusive title, or at least a title which excludes all others not compatible with it; an absolute title to land cannot exist at the same time in different persons or in different governments.

Abstract

(1) A summary or abridgment (when used as a noun). A shortened form of a work or record retaining the general sense and unity of the original.

(2) To summarize (when used as a verb). To shorten or condense by the omission of words without sacrifice of sense or continuity.

Abstract of Title

A condensed history of the title to land, consisting of a synopsis or summary of the material or operative portion of all conveyances which in any manner affect the land, or any estate or interests therein, together with a statement of all liens, charges, or liabilities to which the land may be subject, and of which it is in any way material for purchasers to be apprised.

Acceleration

A term that describes the rate of velocity change for a plotting device when it starts from a standing position. In many plotting applications, the acceleration rate of a device (the rate at which a plotting head achieves its maximum velocity) is more significant than velocity.

Acceptance Block

The graphics symbol (displays as a bright orange square) on a menu that

Indicates the current selection.

Acceptance Criteria

The criteria a product must meet to successfully complete a test phase or to meet delivery requirements.

Acceptance Test

(1)   A formal test conducted to determine whether or not a system satisfies its acceptance criteria; this enables the customer to determine whether or not to accept the system.

(2)   A series of black-box tests on completely assembled software conducted by the end-user rather than the system developer that demonstrate conformance with functional requirements.

Access

(1)   The process of gaining entry to and communicating with a computer.

(2)   A computer capability that allows a user to retrieve, store, change, or add data.

(3)   A passage, path, or approach.

Accounting Advice

A form for the control and disposition of money that is also used for input into the ADP system. An accounting advice is completed when a case is closed or a lease is issued.

Accuracy

(1)   A qualitative assessment of freedom from error; a high assessment corresponding to a small error.

(2)   A quantitative measure of the magnitude of error, preferably expressed as a function of the relative error; a high value of this measure corresponds to a small error.

(3)   The degree of conformity with a standard, or the degree of correctness attained in a measurement. Accuracy relates to the quality of a result and is distinguished from precision, which relates to the quality of the operation by which the result is obtained.

(4)   The degree to which a measured value is known to approximate a true value.

(5) The degree of freedom from error; that is, the degree of conformity to a truth or to a rule. Accuracy is contrasted with precision; for example, a properly computed "one-place" number (i.e., with one digit after the decimal point) might be more accurate than an improperly measured three-place number.

Accuracy Requirement

A statement of how accurate desired results must be to support a particular application.

Accuracy Standards

Specifications which set up standards to which a finished product must adhere.

Acquired Lands

Lands in Federal ownership that are not public domain and that have been obtained by the government by purchase, condemnation, gift, or by exchange for such purchased, condemned, or donated lands or for timber on such lands; normally dedicated to a specific use.

Acre

A measurement of land area. An acre equals 10 square chains, 43,560 square feet, 4,840 square yards, or 0.4047 hectare. There are 640 acres in one square mile.

Action Code

Code assigned to show steps taken to effect change and notations made to the serial register page, such as allowance, issuance, termination, transfer, expiration, etc. Examples include "A" for add, "C" for change, and "D" for delete.

Action Date

Date on which an action occurs (month, day, and year).

Action Remarks

Information explaining, or adding to, the Action Code used to describe an action taken on a case file in an automated system.

Action Taken

Descriptive narrative of the action code.

Active Files

Files which must be retained for the conduct of current work.

Active ID

In the BLM's Map Overlay Statistics System (MOSS), the identification number assigned to a map which has been selected from the master or work data base.

Active Table

In MOSS, a table of maps that have been selected from the master/work data base; lists Active ID, number of entries, search string, map name, and map type.

Activity Plans

See Land Use/Activity Plans.

Ad Hoc Query

A query that is made on an "as-needed" basis using descriptive data and arithmetic and logical operators without programmer intervention. Ad hoc retrievals can be processed in on-line, interactive, or batch modes.

Adaptive

(1)   The ease with which software allows differing system constraints and user needs to be satisfied. Also known as adaptability.

(2)   A capability for accommodating a wide variation in one or more system characteristics while still performing the intended functions. There are many characteristics, logical and physical, of a computer and communications system that cannot be specified with high accuracy before the actual installation is made. "Adjustable" is frequently used if a manual function is required. "Adaptive" is most frequently used with respect to modems to indicate an automatic accommodation of line characteristic variations.

Adaptive Maintenance

(1)   Maintenance performed to make a software product usable in a changed environment.

(2)   In configuration management, the testing and changing of software so it will work with the operating system (e.g., PRIMOS).

Address

(1) The mailing/geographic location of an entity, usually aggregated from Street, City/Town, and Zip Code.

(2) A character or group of characters that identifies a register, a particular part of storage, or some other data source or destination.

(3) In computer jargon, a location that can be specifically referenced in a program. It can refer to a storage location, a terminal, a peripheral device, a cursor location, or any other physical item in a computer system. It is also the part of a to/from terminal message that contains the identification of the terminal.

(4) To refer to a device or an item of data.

Address Coding Guide

A report that relates discrete or ranged addresses with specific political, planning, and administrative geographical areas. Address coding guides can be used to identify the geographical area (council districts, voting precinct) within which a particular site address lies. Address coding guides are used to expedite manual geocoding procedures. Most comprehensive geobased file management systems support functions that generate address coding guides as standard reports.

Address Identification

Procedures that efficiently look up a specific site address from a large site address system simply for the purpose of identifying the validity of the address and determining information about the address, such as current account status and physical information about infrastructure at the site.

Address Matching

Procedures that match discrete site address records against a data base for some specific function. Most common address matching procedures use fixed field addresses; however, more sophisticated free-field matching procedures are available. Most modern local government information systems provide procedures that support the efficient identification of site addresses and the matching of those addresses against either discrete site address inventories or ranged address data bases (geobase data files).

Address Range Generation

Procedures that generate address range records as a function of information in a complete site address inventory data base. These range generation procedures are important when interfacing the data in a site address system with the address range information required for a geobased file management system.

Address Standard

A standard method for coding address information into machine-readable data bases. Three major issues must be resolved before an addressing standard is complete. The first is to determine whether fixed or free-field addresses are to be used. The second is to establish a format for the address that will specify the order in which elements of a site address are to occur. These elements include the house or structure number, the street name, the street type, and the street orientation. The final issue is to define a standard set of abbreviations to use when coding addresses. The United States Post Office has a set of standards in all three areas.

Addressability

The characteristic of a display device which measures the number of separate positions that the control mechanism can obtain. For example, some CRT displays can display 1024 positions of the beam on a horizontal axis.

Adequate Competition

The concept of having two or more responsive and responsible offers. Competition as defined in the Federal Acquisition Regulations (FAR) and the Federal Information Resources Management Regulations (FIRMR) refers to the competitive process rather than the result of the competitive process, i.e., obtaining adequate competition.

Ad Hoc Query

A query that is made on an "as needed" basis, using descriptive data, arithmetic and logical operators without programmer intervention. Ad Hoc retrievals can be processed in on-line, interactive, or batch modes.

Adjudication

(1)   The pronouncing of a judgment or decree in a cause; also the judgment given.

(2)   The legal processing of applications, entries, claims, etc., to assure full compliance with the public land laws and regulations; also the interpretation of statutes and regulations and their application to a particular set of facts.

Adjudicative Tools

Information in manual and automated systems used to process lands or minerals case actions, e.g., land status, stipulations, case tracking, etc.

Adjustment

(1) A process designed to remove inconsistencies in measured or computed quantities by applying derived corrections to compensate for random or accidental errors, such errors not being subject to systematic corrections.

(2) Bringing the movable parts of an instrument or device more nearly into proper relationship and fit.

(3) (Land line) Positioning the public land lines on a topographic map to indicate their true, theoretical, or approximate location relative to the adjacent terrain and cultural features by reconciling the information shown on BLM plats and field records with the ground evidence of the location of the lines.

Administrative Site

A reservation of public lands for use as a site for public buildings, ranger stations, or other administrative facilities.

Administrative State

In the Bureau of Land Management, contiguous groups of geographic states defined as an administrative entity for mission program management, organization/staffing, and budget/accounting.

ADP Services

Consists of machine time, operations, and maintenance; ADP systems analysis and design; programming; software development; training; data preparation; studies or advice on ADP services and equipment management, selection, and use; and ADP facilities management.

ADP System

An interacting assembly of procedures, processes, methods, personnel, software, and ADP equipment that is capable of accepting information, processing it according to a plan, and producing the desired results.

Advanced Data Communications Control Procedure (ADCCP)

A bit-oriented protocol developed by ANSI.

Advertised Procurement

The method of procurement implemented with an Invitation for Bid. Under the Federal Acquisition Regulations (FAR), Section 15, this is now called "Sealed Bidding."

Aerial Photography

The production of photographic images of the earth's surface using a camera mounted into an aircraft. A complete science, photogrammetry, has evolved to support the production of aerial photographs and the generation of data base information from them. Photogrammetry provides methods for adjusting photographic images to conform with a definition of the earth's surface as well as techniques for calculating positions from photographs.

Aerial Triangulation

Triangulation for the extension of horizontal and/or vertical control accomplished by means of aerial photographs, including such procedures as stereo-triangulation, radial triangulation, stereotemplets, and analytical triangulation. Also known as aerotriangulation.

Affidavit

A written or printed declaration or statement of facts made voluntarily, and confirmed by oath, without notice to the adverse party and without opportunity to cross-examine. As one example of their use in BLM, affidavits are usually attached to field notes in support of corner restorations.

Agency Procurement Request (APR)

A request to GSA for a Delegation of Procurement Authority (DPA).

Aggregate Map Generation

The manipulation of feature attributes that are stored in tabular form independently of locational data that are also associated with that feature.

Aggregation

A statistical utility in spatial data bases that allows data bases with high resolutions to be combined into data sets having lower resolution. The most common examples of aggregation are found in grid cell data sets where groups of regular grids are aggregated to form an alternative grid cell data base having a larger cell size. Other examples of aggregation can be found in geocoded data sets where data is tabulated on the basis of a higher level of geography; e.g., data at census tract level is aggregated to form a tabular data base of individual counties.

Aggregation Operations

The process of bringing together many distinct parts or layers of data into one grouping, usually as a composite display.

Algorithm

(1) A statement of the steps to be followed in the solution of a problem; for example, a complete specification of a sequence of arithmetic operations for evaluating sine x to a given precision.

(2) A finite set of well-defined rules that gives a sequence of operations for performing a specific task.

(3) A logical or mathematical model that incorporates a specific set of rules that tell how information is to be manipulated to give a desired result; another word for model. Distinguishing between the model and the real situation is critically important because the differences often explain why a properly executing program gives erroneous or non-useful results.

(4) A mathematical expression relating variables so that measurable variables can be input and processed to generate values for required variables.

Alias

(1) An additional name for an item.

(2) An alternate label. For example, a label and one or more aliases may be used to refer to the same data element or point in a computer program.

Alias Table

A table of text strings that represents strings that are logically equivalent to other strings. Alias tables are most commonly used in address-matching applications where an equivalence table is constructed to depict variant spellings of road names as well as historical or widely accepted alternatives to particular road names.

Aliquot Part

Legal subdivision, except fractional lots, or further subdivision of any other legal subdivision, except fractional lots, by division into halves or fourths ad infinitum. Most aliquot part definitions are based on the progressive halving and quartering of land sections. The northeast 1/4 of the southeast 1/4 is an example of an aliquot part description (NE 1/4 SE 1/4). This parcel represents a nominally 40-acre tract in a particular section.

Aliquot Part Generation

Use of an algorithm to generate aliquot part boundaries using coordinates for the exterior of the rectangular survey section and the theoretical orientation of identified surveys within the section.

Allotment

(1)   An area of land designated and managed for the grazing of livestock. An allotment may consist of multiple pastures.

(2)   A scheduled deduction used in employee payroll processing. For instance, an allotment may be made for loan and/or savings program payments.

Allotment Management Plan (AMP)

A document prepared in consultation with grazing lessees or permittees and other affected interests that applies to livestock operations on the public lands or on lands within National Forests in the eleven contiguous Western States and that:

(1)   prescribes the manner in which, and extent to which, livestock operations will be conducted in order to meet the multiple-use, sustained-yield, economic, and other needs and objectives as determined for the lands by the Secretary concerned.

(2)   describes the type, location, ownership, and general specifications for the range improvements to be installed and maintained on the lands to meet the livestock grazing and other objectives of land management.

(3)   contains any other provisions relating to livestock grazing and other objectives found by the Secretary concerned to be consistent with the provisions of FLPMA and other applicable law.

Alpha Site/Beta Site

Refers to testing of new software. The alpha test is performed within the developer's organization. This test verifies the functions of the software. Beta testing is done outside of the developer's organization. This is the "real world" test to uncover minor bugs. Beta sites test unproven software, report bugs, and provide suggestions for enhancements to the developer. The beta site benefits from being the first customer to have use of the software, which can provide a competitive edge.

Alphabetic Character

A letter or other symbol, excluding digits, used in a language.

Alphabetic Code

A code whose code set consists only of letters and associated special characters.

Alphanumeric

Pertaining to a character set that contains letters, digits, and usually other characters, such as punctuation marks. Synonymous with alphanumeric.

Alphanumeric/Alphanumeric Code

A set of characters comprising a combination of letters, numbers, punctuation marks, and symbols.

Alphanumeric String

String of information consisting of both letters and numbers, and possibly including other symbols such as punctuation marks and mathematical symbols.

Alteration

Any change to a machine that deviates from the physical, mechanical, or electrical machine design (including microcode), whether or not additional devices or parts are required.

Alternate Routing

A feature that gives the switching system the responsibility of selecting the most economical circuit to use on outgoing calls initiated by stations.

American National Standards Institute (ANSI)

An Institute that organizes committees of computer users, manufacturers, etc., to develop and publish industry standards. ANSI standards are used by U.S. firms as guidelines, although they may be modified. Accepted and proposed standards include data transmission code and protocol (ASCII), media (e.g. tape, disk, and diskette), and computer languages (FORTRAN AND COBOL).

American Standard Code for Information Interchange (ASCII)

A standard code that utilizes a coded character set consisting of 7-bit coded characters (8 bits including a parity check) used for information interchange among data processing systems, communications systems, and associated equipment. The ASCII set consists of control characters and graphic characters. Synonymous with USASCII.

Analog

(1)   A special type of model that can be made analogous to the real situation. An electrical circuit that represents a hydraulic circuit is a good example of analog, even though the mathematical models of each are identical.

(2)   In data transmission, a term used in opposition to digital. In this context, analog transmission uses amplifiers that regenerate and magnify the

incoming signal, including any noise (induced) components. Digital transmission uses repeaters that generate completely new signals based on whether the incoming binary signal was mostly a one or mostly a zero during the period the incoming signal was measured; a binary (two valued) transmission scheme is assumed.

In the real world, all signals are analog in the sense that it is impossible to generate an absolutely square pulse (waveform) because nothing in the real world can change its value instantaneously. The concept of digital (pulse detection versus waveform amplification) is the important issue. Contrast with digital.

Analog Computer

A computer that represents variables by physical analogies. The term applies to any computer that solves problems by translating position of voltage into related mechanical or electrical quantities and uses mechanical or electrical circuits as an analog for the physical phenomenon being investigated. In general, it is a computer which uses an analog for each variable and produces analogues as output. Thus an analog computer measures continuously, whereas a digital computer counts discretely.

Analog Photoplotter

A device that estimates coordinates for individual locations on a photograph by using a series of internal relative measurement devices. Analog photoplotters do not employ mathematical models of a photographic surface; they estimate coordinates based on a series of mechanically derived measurements made by the device. The relative positions of these devices are then used to estimate a coordinate.

Analysis

Methodological investigation of a problem by a consistent procedure and the separation of the problem into related units for further detailed study.

Analyst

A person who defines problems and develops algorithms and procedures for their solution.

Analytical Photoplotter

A device that estimates coordinates for individual locations on a photograph by using a mathematical model of the surface represented in the photograph. The model is established by assigning accurate coordinate estimates to specific locations on the photographic surface. All coordinate estimates from the remainder of the photograph use the mathematical model (usually a multiple-order polynomial) to estimate relative coordinates.

Analytical Products

Products made with the use of analytical techniques.

Analytical Reporting Functions

Basic summary and cross tabulation functions that support the generation of counts, distance summaries, and area summaries based on user specified logical functions.

Analytical Triangulation (AT)

Refer to aerial triangulation.

Ancillary Data

Auxiliary or supplementary data.

Ancillary Data Base Plotting

A function that allows the plotting of ancillary planimetric map data along with the thematic map display. This function should allow data from both geographic information system files and map design system files to be generated as part of the final plot file for the thematic map display. The coordinate file import option should be used as the basis for moving ancillary plot files into the thematic mapping environment.

Ancillary Ties for Base Survey Placement

A set of functions to place all tie relations between base survey corners not representing boundaries between specific land network parcels.

Annotation

A term used to describe textual features that are used to label maps, plats, or documents. The entry and maintenance of map annotation is often more involved and time consuming than the entry and management of individual lines and points on a digital map.

Answer Back

A manually or automatically initiated reply message from a terminal, which usually includes the terminal address to verify that the correct terminal has been reached and that it is operational.

Appeal

A process of civil law origin that entirely removes a controversy to an appellate court for the purpose of obtaining review and possible retrial. In general terms, an appeal takes a case to a higher court. An appeal of a BLM decision is reviewed by the Interior Board of Land Appeals (IBLA), which removes the review from the jurisdiction of the agency.

Applicant

An individual, corporation, State or local government, etc., applying for rights in, or title to, public lands or resources.

Applicant Survey

An individual, corporation, State or local government, etc., requesting the execution of a cadastral survey.

Application

(1)   The subject matter process or problem to which computer technology is applied, e.g., a payroll system, a supply system, or control of incoming aircraft.

(2)   A formal request for rights in, or eventual title to, public lands or resources.

Application Area

An area of employee responsibility in a particular subject matter application, e.g., the item-accounting subsystem within an automated system.

Application Generator

A software utility that supports the interactive design of individual applications. Application generators are most often found as support software for data base management products. Simple generators provide simple-to-use utilities that allow a user to define a data base, format a screen of data for input, and interactively format output reports to terminal screens and line printers. More complicated application generators provide a significant amount of intelligence that predicts the requirements of a data base for a particular class of functions and automatically defines the data bases, input procedures, and reports required for the application. Most fourth-generation languages provide application generation functions.

Application Package

A series of interrelated routines and subroutines designed to perform a specific task.

Application for Permit to Drill (APD)

A four-part requirement for any operator who wishes to initiate drilling on an oil and gas lease on the public lands. The four parts are a drilling plan, evidence of bond coverage, designation of operator, and other supporting information required by orders and notices.

Application Program or Software

Software that performs a particular user function and is specifically designed to enable functional use of a computer system; for example, software for word processing, navigation, payroll, or general ledger. Contrast with system software.

Appropriated or Appropriation

Public lands covered by an entry, settlement, claim, location, withdrawal, or reservation that sets the land apart for some particular use or disposal.

Appropriated Public Lands

Original public domain lands which are covered by an entry, patent, certification, or other evidence of land disposal; for certain purposes, public lands which are within a reservation and are covered by certain classes of leases are also considered appropriated.

Approved Mineral Survey

The approval of a mineral survey at the State Office, which level is final. No Washington Office acceptance is required, as is the case with public land subdivision surveys.

Arc

A unit of spatial data that is most often a single segment of map linework. Areal data files are frequently entered as arc units to avoid duplicate digitization and/or storage of map lines as in polygon forms of areal data storage. The topological definition of an arc is a line that connects two nodes. A common procedure in spatial data systems is one that digitizes individual arcs, with the arcs eventually chained into closed polygon units. Topologically structured arcs retain the attributes of the two areas divided by the arc (boundary).

Arc Data

Data representing the location of linear features or the borders of polygon features.

Arc-Node Files

A data file that maintains nodes and arc segments and is used in the creation and maintenance of intelligent digital maps. Map linework on these files represents the line between intersections of three or more map lines. In arc-node files, only the end points of line segments (arcs, links, chains) are repeated; these end points are referred to as nodes. Because of inconsistency on the part of operators digitizing map lines, operators must often alter the position of these end points. Procedures designed to edit arc-node files use data structures that maintain nodes, arc segments, and the relationships between them (arcs using a node, nodes at the end of an arc).

Arc-Polygon Files

A data file, usually in a list structure, that depicts the relationship between digitized chains of coordinates and the map areas that use the chains in their definition. Map linework is often digitized in segments (chains). Once coordinate data have been entered for each segment in a system of lines on a map, the relationship between these digitized chains (also called arcs) and closed map areas is calculated. As closed areas (or polygons) are constructed from chains, the identification number for each chain used is stored in an ordered list. Arc-polygon files, therefore, consist of lists describing which arcs are used to create polygons. Using these lists, arc/chain numbers can be used to retrieve arcs in a particular order to create polygon definitions for individual applications. Other issues that must be resolved in arc-polygon files are the methods to indicate the use of a line opposite its direction of digitizing and the methods used to depict the beginning and end of exclusion islands in the definition of polygons.

Area

(1)   A level of spatial measurement referring to a two-dimensional defined space. A polygon on the earth as projected onto a horizontal plane is an example of an area.

(2)   In digital cartography, an area is a feature that can be represented by a closed string of coordinates. An area, often referred to as a polygon, is most commonly represented by a set of coordinates in which the first coordinate is equal to the last. In a more modern topological data structure, an area or polygon is represented by a set of line segments that if connected would form the boundary of the area. The definition of an area in a spatial data base often requires the associated definition of individual outparcels within the area. These outparcels, often called exclusions or islands, represent areas wholly enclosed in an area that are not part of the area. For instance, the polygon boundary of a lake will contain coordinate boundary definitions for all islands within the lake. These islands represent exclusion areas associated with the lake boundary.

Area of Critical Environmental Concern (ACEC)

An area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.

Area Data

In the BLM's Map Overlay and Statistical System (MOSS), data defined within an enclosing polygon. In the BLM's Map Analysis and Processing System (MAPS), a summary of cells containing identical values.

Area Mapping Functions

Procedures required that support the automated generation of choropleth map displays based on statistical characteristics of each area to be portrayed.

Area Table

In the BLM's Map Overlay and Statistical System (MOSS) and Map Analysis and Processing System (MAPS), a table generated by the AREA command, including area summaries for each subject (MOSS) or value (MAPS-discrete) in a map.

Area/Area Relation

A relationship between polygons. Three area/area relationships are possible:

(1)   all polygons that lie entirely interior to a particular polygon.

(2)   all areas that a particular area lies inside of.

(3)   all areas that are contiguous to a particular area. This relationship should distinguish between areas which share borders with an area and areas simply touching another area at a node.

Area/Coordinate Relation

A relationship which provides the full coordinate traverse for each area in the data base.

Area/Node Relation

A relationship which describes the nodes encountered as an area boundary traversed in a clockwise direction.

Area/Segment Relation Generator

A procedure for returning an ordered list of chains (concatenated or simple 1-

cells) making up the full boundary of an area. The list should also include references for all exclusions associated with the chain and must retain an indicator that documents the direction a feature should be chained so as to form a clockwise traverse around the area and a counterclockwise traverse for all exclusions.

Areal Coordinate Data

One of eight basic classes of spatial data; any type of data that depicts a series of map lines representing edges between areas. These map lines are stored as ordered lists of coordinates. Land use, soils, surface vegetation, and wildlife habitat data are usually digitized using areal coordinate techniques, the outline of all map linework being digitized using either segment (arc) or closed area (polygon) forms of digitizing. In the line segment method of capture, the segments are later chained into closed areal units. Linework resolution makes coordinate data entry superior for storage of mapped information to be used for the production of computer based maps. Many spatial analytical functions are more difficult when areal data bases are depicted in coordinates rather than grid cell (raster) forms.

Areal Cross-Tabulation

The most common spatial analytical function performed on digital mapped data bases. Areal cross-tabulation procedures overlay two or more data bases into a single data base scheme that supports the calculation of areas for all possible combinations of categories represented on maps. The most common areal cross-tabulation assesses particular natural and/or cultural features within political, planning, or administrative areas used as decisionmaking units (counties, cities, census tracts, section, etc.). Commonly requested cross-tabulations are land use totals within political units and land cover totals within potential development areas.

Areal Features

One of three basic classes of mapped features represented in spatial data bases. Areas on maps are denoted by a set of boundaries that close. Areas are represented in spatial data bases in a large number of ways. The depiction of an areal map feature is entirely dependent on the scale of a map and the method used to depict an area. The location of individual parcels of ownership will appear as single points on a 1:500,000 map of the state. Conversely, the pointed representation of a city on a U.S. map will be a closed area on a county map.

Areal Grid Cell Data

One of eight unique classes of spatial data. Grid cell forms of data describe the phenomena that occur inside each of a mesh of contiguous cells. Two basic types of grids exist: regular and irregular. Regular grids store information for a mesh of symmetric cells. Rectangular grids are the most

common type of regular grid cell though hexagonal grid schemes are also employed, often in terrain and surface modeling applications. Irregular grids are either random, as in the case of triangulated networks (groups of contiguous triangles), or systematic, as in the case of telescoping grids based on angle line intersections with a series of circles having equally spaced radii. In grid cell schemes, a single value or group of values is assigned to a cell. These assigned values are assumed to represent the entire grid. In some cell coding schemes, multiple values are assigned to a cell based on the percentage of the cell covered by each value. Some types of spatial data can only be handled in grid cell data forms. These are data bases produced from remote sensing devices such as in-flight scanners and satellite scanners.

Areal Tabulations

A function which accepts an area element and returns the area of the element. The function should optionally return the perimeter as well.

Arithmetic Combinations of Two or More Images

Arithmetic combination programs which provide addition, subtraction, multiplication, or division of two images to create a third, with full precision maintained.

Arithmetic Operators

Operations such as addition, subtraction, multiplication, division, exponentiation, etc., that are performed on spatial or nonspatial data.

Arithmetic Unit

The unit of a computing system that contains the circuits that perform arithmetic operations.

Array

To place in order.

Artificial Intelligence

The capability of a device to perform functions that are normally associated with human intelligence, such as reasoning, learning, and self-improvement.

Aspect

Horizontal direction in which a slope faces, commonly expressed as the direction clockwise from north. Slope refers to the intensity of change in elevation (or other statistical value) across a discrete surface. In more complex surface modeling, relationships between discrete sections of land surface are established. In these surface models, the direction of slope, or aspect, must

be determined. Aspect is an angular measurement mathematically calculable from three unique points in a three-space. Once the aspect for a particular section of surface is determined, relationships between finite sections of a modeled surface can be established. Aspect is most often used in modeling surface and subsurface water characteristics. Most software systems designed to handle terrain data can generate the slope and aspect of a surface, use these calculations in analyses, and display aspect values. The most common example of an aspect map is one that depicts the probable reflectance of a directed light source on a surface.

Aspect Categories

Classification of an aspect into a grouping based on a cardinal compass direction or a range of degrees.

Assemble

To translate a program expressed in an assembly language into a machine language and perhaps to link subroutines. Assembling is usually accomplished by substituting machine language operation codes and by substituting absolute addresses, immediate addresses, relocatable addresses, or virtual addresses for symbolic addresses. Contrast with compile, interpret.

Assembler

A computer program that translates written instructions directly into machine language. Contrast with compiler.

Assignee

A recipient or grantee; one to whom an interest is given or transferred, usually in writing.

Assignment

A transfer or a making over to another of a whole or a part of property, either real or personal, or the giving to another of a right.

Assignment of Attributes

The manual and automatic assignment or selection of processes or attributes to features by name, coordinate, or cursor position.

Assignment of Duplicate Attributes

Lines or closed areas placed in a data base without having thematic attributes associated with them.

Assignment of Graphic Characteristics

The assignment of graphic characteristics, for example, color, line weight, etc. to features and attributes.

Assignment of Redundant Line Status

The assigning of redundant line status to all new line segments based on the results of crossing a null attribute line or area into the data base. A distinction is made between fully redundant lines, conditionally redundant lines, and significant lines.

Assignor

A person who assigns a right.

Asynchronous

Not with rigid timing, i.e., sporadic or random occurrence. In communications, asynchronous transmission means that characters are not required to be in perfect time. The additional information required to establish the occurrence of characters is supplied by additional bits: one at the beginning and one or more at the end. The penalty associated with asynchronous transmission is the loss of efficiency associated with transmitting the extra bits (overhead). The benefit is simpler transmitting and receiving circuitry.

Attribute

(1)   One of several characteristics which a graphic or alphanumeric data primitive can possess, e.g., line width or field size.

(2)   Integer, real, and/or alphanumeric information which may be ascribed to items on a map. (In MOSS up to 200 attributes may be assigned to a single map unit.)

(3)   A coding of types of data, e.g., vegetation, transportation, pipelines. Alpha or numeric, or a combination description of digital data.

(4)   The most primitive level of description for data described within an entity or object class, e.g., the day of the month as an attribute of a date.

Attribute Analysis

A comparison values which are related to most data bases, spatial or non-spatial. These attributes are often used in spatial analytical procedures, particularly if the contents of two or more data bases are being compared simultaneously. A commonly employed type of attribute analysis is one that checks the composite attributes from two or more computer-based maps to determine the optimal location for a particular activity (site selection).

Attribute Data

Descriptive data for an entity in a map/spatial theme or non-spatial characteristics of an event, activity, or object.

Attribute Precedence Control

The control available in a system which allows combinations of attributes from various overlays to redefine the attributes from other overlays in composite maps.

Attribute Selection Functions

A depiction assignment language supporting the assignment of symbology as a function of element attributes.

Attribute Tagging

Process of assigning an attribute to a particular feature.

Attribute Updates

A process of updating through "cut and paste" operations whereby the locational and attribute data for spatial entities located within a certain area are replaced by the attribute data of another entity (area, line, or point).

Audit

(1) An independent review for the purpose of assessing compliance with software requirements, specifications, baselines, standards, procedures, instructions, codes, and contractual and licensing requirements.

(2) An activity to determine through investigation the adequacy of, and adherence to, established procedures, instructions, specifications, codes, and standards or other applicable contractual and licensing requirements, and the effectiveness of implementation.

Audit Table

In MOSS, a table of information describing a map's subjects, items, perimeters, and areas.

Auditing and Financial System (AFS)

A Minerals Management Service (MMS) system for collecting, accounting for, and disbursing royalties and certain rents from Federal and Indian leases under the Royalty Management Program. Leases can be for oil and gas, solid minerals, or geothermal exploration and production.

Authorized Application

An application to acquire title to public lands, that has been accepted and approved.

AUTO

A command verb under the CARDIN subsystem that causes line numbers to be automatically inserted in a file while in the BUILD mode.

Automated Data Processing (ADP)

(1) The use of any kind of automation in data processing.

(2) The execution of a planned or "programmed" sequence of operations upon data. The term "data processing" is used broadly to include all computing-type operations performed within a business environment, whether or not computers are involved.

(3) Any function performed by data processing equipment, including computers, peripheral devices, communication facilities, and associated devices. Specific functions include, but are not limited to, merging, sorting, transmitting, input and output activities, and similar types of operations. Synonymous with Data Processing.

(4) Data processing largely performed by automatic means.

(5) By extension, the discipline which deals with methods and techniques related to data processing performed by automatic means.

(6) Pertaining to data processing equipment such as electrical accounting machines and electronic data processing equipment.

Automated Digitizing System (ADS)

Computer software for entering spatial data coordinates.

Automated Federal and Indian Lease Management System (AFILMS)

A USGS system under the control of the BLM consisting of a solid leasable minerals data base which contains both pre- and post-authorization information. All information essential to solid mineral operations personnel and upper levels of management is available on this system.

Automated Land and Mineral Record System (ALMRS)

An automated database of land and mineral use authorizations, land survey records (descriptions of land base), and land status records (title or ownership,

leases, right-of-way, withdrawals, etc.) related to the public land survey system and geographic coordinates. This system's current data is needed by all public land management agencies, state and local governments, and the general public. ALMRS is being developed and implemented to primarily serve as an information base in support of the BLM's resource program activities.

Automated Mapping

Computer procedures that partially or completely eliminate the manual production of maps. Most automated mapping systems provide a bundle of hardware and software designed to capture, edit, manage, and display information used in the production of computer base maps. Automated mapping systems differ from spatial information management systems in that mapping systems are designed almost exclusively for the production of thematic, planimetric, and topographic maps. Spatial information management systems usually provide a number of analytical features not found in mapping systems and often have an automated mapping package as part of their standard repertoire of software.

Automated Inspection Records System (AIRS)

A computer system to provide automated support to the oil and gas inspection and enforcement program.

Automated Resource Data (ARD)

Data that resides on numerous minerals and natural resource systems throughout the BLM. This data represents information about the natural and cultural resources and characteristics of public land administered by BLM. This data is typically represented in a variety of formats, including maps, tables, charts and reports, such as those showing wildlife habitat or the location of timber sales. ARD is the storehouse of information about resource values and uses of the BLM-managed public lands. This data will be included in the BLM's LIS.

Automatic Attribute Assignment

The process of automatically assigning attributes to polygons based on previously assigned attributes or according to their unique ID numbers.

Automatic Character Recognition

The automatic recognition of characters using scan digitizers.

Automatic Controlled Reduction Auxiliary Memory

Any computer memory or memories used to supplement main memory.

Automatic Generation of Topology

The automatic generation of topology by identifying arcs, nodes, and polygons and listing each feature ID number and its topological attributes such as polygon areas, polygon perimeters, and line lengths in the appropriate attribute tables.

Automatic Polygon Centroid Calculation

System capability for determining the center of a polygon area without operator intervention; usually associated with automatic label placement.

Automatic Polygon Formation

The ability to automatically generate polygons from arc and node data.

Automatic Polygon Overlay

Fully automatic polygon overlay, with optional weighting of accuracy of input lines to guide line positions after sliver polygon removal. Advance polygon overlay techniques treat all input data sets as fuzzy data and produce a fuzzy data set as output. Rather than removing sliver polygons, all spatial locations are statistically attributed as to probability of being in one or more polygons.

Automatic Repeat Request (ARR)

An error control technique that requires retransmission of a data block that contains detected errors. It requires positive (ACK) and negative (NAK) responses from the receiving terminal. A special form called "go-back-in" allows multiple blocks to be acknowledged, with a single response for multiple blocks to be transmitted before an acknowledgement is received.

Automatic Send Receive (ASR)

A teleprinter terminal with paper tape or magnetic tape devices. By extension, it refers to any keyboard terminal with off-line storage capabilities that permit a message to be generated off-line for later transmission. Typically, received messages can be permanently recorded.

Automatic Snapping

System capability for completing a line segment whose end approaches a predefined threshold of closeness to an intersection or node, without any operator intervention.

Auxiliary Memory

Any computer memory or memories used to supplement the main memory.

Available File Table (AFT)

A listing of the individual files that are currently open for use by a terminal.

Azimuth

Horizontal direction of a line measured clockwise from a reference plane, usually the meridian.

Azimuth Line (Photogrammetry)

A line radial from the principal point, isocenter, or nadir point of an aerial photograph which represents the direction to the corresponding image point on an adjacent photograph taken in the same flight line. This line is used extensively in radial triangulation.

Azimuth Mark

A mark set at a significant distance from a triangulation or traverse station to mark tne end of a line for which the azimuth has been determined, and to serve as a starting or reference azimuth for later use.

BACKUP

A command verb that tells the search pointer used by Text Editor to back up a number of lines or to the beginning of the file.

Back-Up

(1) Provisions made for the recovery of data files or software, for restart of processing, or for use of alternative computer equipment after a system failure or a disaster.

(2) The procedure of copying data and/or text to another disk or diskette for storage.

Background

A computer operation that is completed without interaction. Background computer operations can range from a standard, independent computer process (batch) to a set of processes that operate in tandem with an interactive process but that are not directly requested by an interactive user.

Bacterium

A program that replicates itself and feeds off the host system by preempting processor and memory capacity.

Barriers

Any factors such as physical features, time, season, speed, direction, and accumulation that must be considered during distance analyses.

Base Data

Basic level of map data on which other information is placed for purposes of comparison or geographical correlation.

Base File Import/Export

Functions that break apart (or structurally decompose) a particular topological file import/export structure into a data base available to the map compilation system. This function also should have an inverse option to generate one of these structures as required. The organization of the function should be based on the reading or construction of a number of standard formats.

Base Line

(1) A starting point against which future improvements will be compared.

(2) In cadastral survey, a line which runs in an east-west direction from an

initial point.

(3)   A surveyed line established with more than usual care to which surveys are referred for coordination and correlation.

(4)   (Construction) The center line of location of a railway or highway often termed the base line of location; a reference line for the construction of a bridge or other structure.

Base Map

(1)   A map containing data which seldom changes and is used repeatedly as the fundamental framework necessary for adequate geographic reference and positioning of information that may be drawn or overprinted on it. It contains only the common essentials that are generally found on a wide variety of maps of comparable scales.

(2)   A record of the two-dimensional locations of basic reference points and lines within a given area, with sufficient accuracy for general use at that scale. For example, a base map at the typical urban property mapping scale of 1:1000 will normally show at least roadways (e.g., edges of pavements), rail lines, major structures, political boundaries, and survey control monuments, which could be plotted as a typical graphic map, or on an orthophoto, or which could be digitized in a computer memory.

Baseline

(1)   A specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for further development, and that can be changed only through formal change control procedures.

(2)   A configuration identification document or a set of such documents formally designated and fixed at a specific time during a configuration item's life cycle. Baselines, plus approved changes from those baselines, constitute the current configuration identification.   For configuration management there are three baselines:

(a)   Functional baseline: The initially approved functional configuration.

(b)   Allocated baseline: The initially approved allocated   configuration.

(c)   Product baseline: The initially approved or conditionally approved product configuration identification.

BASIC

An algebra-like language used for problem solving by engineers, scientists and others who may not be professional programmers.

Basic Telecommunications Access Method (BTAM)

IBM's lowest level I/O micro-routine support for implementing host computer communications.

Basins

A term applied in hydrology that indicates a closed area where the drainage patterns are consistent in some way for all water falling into the area. The majority of basins are defined on the basis of whether all water falling in the area drains into a single feature or drains out of only a single location at the edge of the basin boundary.

Batch Entry

The entry of data in a variety of character and numeric formats, including 80-character card image form where input is followed after "some time period" by output. The user does not interact online but inputs data into a system-controlled, rule-based processing queue.

Batch Processing

(1)   Computer processing in which input is followed--often minutes or hours later--by output. The user does not interact with the computer program while the processing is taking place. The program's flow of control is determined by the input data, the program, and the computer system rules. Contrast with interactive processing.

(2)   The method of data processing in which a number of similar data items, transactions, and programs are coded and collected into groups, entered into a computer, and processed sequentially during a single machine run. The computer carries out the entire processing operation with no further instructions.

Batch Query

A query or group of queries that are executed in sequential order, where the output is deferred, i.e., is not required immediately.

Batched Job

(1)   A job that is grouped with other jobs as input to a computing system.

(2)   A job whose control statements are grouped with job control statements of other jobs as input to a computing system.

(3)   Synonymous with stacked job.

Baud

Unit of signaling speed. The speed in bauds is the number of discrete conditions or signal events per second. (This is applied only to the actual signals on a communication line.) if each signal event represents only a bit condition, baud is the same as bits per second. When each signal event represents other than one bit (DIBIT), baud does not equate to bits per second.

Baud Rate

The number of signal elements sent over a communications line in one second.

BCD Code

Binary Coded Decimal, a popular early computer data code in which the bit patterns for the decimal digits had a binary value corresponding to the digits.

Bearing

(1)   Horizontal angle at a given point measured clockwise from a specific reference datum to a second point.

(2)   The direction of one point or object, with respect to another, where the direction of the line is expressed by the acute angle with respect to a reference meridian. The reference direction can be North or South and the meridian may be assumed, grid, magnetic, astronomic, or geodetic. Typical bearings are N 60 10'E, S31 17'W, N17 22'W.

Bearing, Back

The reverse direction of a line as corrected for the curvature of the line from the forward bearing at the preceding station. This is important on control lines such as the secant and tangent and on long triangulations. Thus, the forward bearing of the secant at a township corner in latitude 45 is N89 57' 4"W (when the line is running westerly); at 3 miles from the starting point the back bearing is east, the forward bearing west; at the next township corner, 6 miles from the starting point, the back bearing is N89 57' 24"E. These are the true bearings in angular measure from the meridian at the point of record.

Bearings and Distances Display (Metes/Bounds)

An automated feature for calculating and displaying bearings and distances for a metes and bounds parcel for a specified map/plat.

Beginners' All-Purpose Symbolic Instruction Code (BASIC)

A programming language designed for personal computers and beginning computer users.

Benchmark

(1)   A reference point for measurements.

(2)   A series of tests for ensuring that hardware and/or software meets user needs.

Benchmark Test

The process of testing a system to evaluate capacity, flexibility, response time, expansion, ease of use, etc., to ensure that the proposed system will meet the current and future needs.

Best and Final Offer (BAFO)

A final offer made after negotiations. It is requested from those offerors whose proposals are acceptable and who are responsible and within the competitive range.

Beta Site

See Alpha Site/Beta Site.

Bid

(1)   A price, and the intent, to fulfill a contract solicited as a result of an invitation for bids.

(2)   A written or oral offer to purchase or lease.

Bidder

The firm or individual offering a bid in response to an invitation for bids.

Binary

(1)   Pertaining to a characteristic or property involving a selection, choice, or condition in which there are two possibilities.

(2)   A numbering system based on two digits, 0 and 1.

Binary Code

A code that makes use of exactly two distinct characters, usually 0 and 1.

Binary Coded Decimal (BCD)

A system of representing decimal numbers in which each decimal digit is represented by four binary ones or zeros.

Binary Synchronous

See Bisync.

Bisync (BSC)

A method or protocol originated by IBM that includes control characters and procedures for controlling the establishment of a valid connection and transfer of data. Also called Binary Synchronous.

Bit/Binary Digit

(1)   Bit, an acronym for Binary Digit; hence, a unit of data notation. In the binary numbering system, only two marks (0 and 1) are used.

(2)   The smallest unit of information that can be stored in the computer.

Bits Per Second (BPS)

In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

Black Box Testing

The examination of some aspect of a fundamental unit with little or no regard for the internal structure of the unit. For software, testing would indicate whether functions are operational, input is properly accepted, output is properly produced, and the integrity of external information (e.g. data files) is maintained. Contrast with White-Box Testing.

BLM Hotline

Telephone number which users may call for assistance with computer-related problems.

Block

(1)   A string of records, a string of words, or characters, formed for technical or logical reasons to be treated as an entity.

(2)   A collection of contiguous records recorded as a unit. Blocks are separated by interblock gaps and each block may contain one or more records. A record may contain one or more characters.

(3)   A group of bits of digits, transmitted as a unit. An encoding procedure is generally applied to the group of bits or digits for error control purposes.

(4)   A set of things, such as words, characters, or digits, handled as a unit.

(5)   A term used in a variety of applications throughout the field of spatial
        data management.   The most common use of the term is in the
        identification of individual parcels within a subdivision.   The legal
        descriptions for these parcels are delineated by subdivision name, block
        name, and lot name.   Many parcel identification systems use a block
        number in their coding scheme.   A second common use of the term is
        to denote the lowest level tabulation unit for census data.   Most blocks
        in census data bases correspond to a single subdivision block in
        urbanized areas.   A third use of the term is to denote the lowest level of
        geography in geobased file management systems.   Geobased files depict
        the location of delineation lines between all planning, political, and
        administrative geocodes used by a local government.   In many instances,
        a block on a geobased file is equivalent to a census or subdivision block.

Block Length

A measure of the size of a block, usually specified in units such as records,
words, computer words, characters, or bytes.

Block Segment

In geobased files, a logical record of data that represents the characteristics of
the road segment along a single block face (between two and only two blocks).
The block orientation of geobased files supports the coding of the files to the
smallest level of geography possible.   Many geobased file systems (Census
DIME and TIGER files) use a block face as the basic low-end geographical unit.
Many geobased files must split blocks because of local political, administrative,
and planning area boundaries that cut through blocks.

Bona Fide Rights

Rights, such as in ownership of land, which are real, actual, genuine, and
worthy of acceptance; rights acquired in good faith under the law.

Bond

An agreement in writing in which one agrees to pay a specific amount of
money to another in damages in the event of default in performance by the
party who is bonded.   These can be corporate surety bonds, bonds with
individual sureties, or personal bonds with negotiable Federal securities.

Bond and Surety System

An automated system used for the collecting, storing, and retrieving of data
relating to nationwide and statewide bonds filed with BLM in all lands programs
and for some of the minerals programs (e.g., oil and gas, surface management,
etc.), but not others (e.g., mineral material performance bonds.)

Bonus

A lump sum paid to the United States by a successful bidder for a mineral lease, such payment being in addition to the rents and royalties specified in the lease.

Bonus and Rental Accounting Support System (BRASS)

A Minerals Management Service (MMS) system designed to support high-speed automated check processing; collect rentals and deferred bonuses; distribute funds; and provide supporting data to advise fund recipients of revenue sources.

Bonus Payment

Usually a one-time payment made to a landowner or working interest owner in consideration for assigning, leasing, or farming out an oil, gas, or mineral lease to the person paying the bonus.

Boolean

Logical operations (including AND, OR, XOR, or NOT) performed on data.

Boolean Algebra

A process of reasoning, or a deductive system of theorems using a symbolic logic, dealing with classes, prepositions, or on-off circuit elements. It employs symbols to represent operators such as AND, OR, NOT, EXCEPT, IF...THEN, etc., to permit mathematical calculation.

Boolean Operations

Logical combinations of data involving union, intersection, complement, and exclusion.

Boolean Relational Operators on Lists

Boolean operators that allow the user to generate lists representing the logical product (intersection) or sum (union) of two data sets.

Boolean Retrievals

Search strategy for information retrieval based on the use of the logical operators AND, OR, and NOT to represent symbolic relationships.

Boolean Spatial Analysis

The ability to selectively overlap two or more shapes on top of one another and

calculate the amount of overlap.

Bootstrap

(1) A short computer program that is permanently resident on, or easily loaded into, a computer whose execution brings another, larger program, such as an operating system or its loader, into memory.

(2) A set of instructions that causes additional instructions to be loaded until the complete computer program is in storage.

(3) A technique or device designed to bring itself into a desired state by means of its own action; for example, a machine routine whose first few instructions are sufficient to bring the rest of itself into the computer from an input device.

(4) That part of a computer program used to establish another version of the computer program.

Bootstrap Loader

(1) An input routine in which preset computer operations are used to load a bootstrap.

(2) An input routing in which simple preset computer operations are used to load instructions that, in turn, cause further instructions to be loaded until the complete computer program is in storage.

Boundary

Any mapped feature that represents the delineation between two and only two areas. Topologically, a boundary (also called an edge) is an undirected chain (arc, line segment, 1-cell) between nodes (0-cells). Boundaries are often restructured into closed areas using some form of chaining routine. In topological chaining procedures, boundaries must be chained twice, once in the direction of digitizing and once opposite the direction of digitizing. These two directions are often called left and right and are maintained as attributes to the border for use in a variety of spatial analytical functions (e.g., boundary dissolving, polygon-to-grid conversion, polygon overlay, and choropleth mapping).

Boundary Allocation

The identification of the extent of influence of a resource center that either distributes a resource/service to, or receives a resource/service from, a limited surrounding zone.

Boundary Analysis

The analysis of the characteristics of adjacent polygons that together represent a particular area of interest.

Brand Name or Equal

A procurement method that is sometimes employed for ADP characterized by specifying a make and model. This method of procurement is considered restrictive unless detailed salient features are included to allow competition.

Break

(1)   In a communication channel, a point where the receiver interrupts the sender, taking control of the circuit. The term generally applies to half-duplex circuits as well as two-way telephone circuits controlled by voice-operated devices.

(2)   A point in a file where a grouping of records changes into a different grouping of records. The break occurs where one or more of the values in the records changes. For example, if a file listing the names and addresses of a company's customers is organized by zip code of each customer, a break would occur where the value of the zip code changes.

(3)   To interrupt a computer's processing. Generally, this interruption is handled by depressing a break key on a terminal. All processing on the processing job being interrupted is held in suspense until additional instructions are received.

Broadband

High or large bandwidth; usually refers to circuits capable of transmitting 19,200 bits per second or more.

Broadcast

Simultaneous transmission of data to a number of receiving locations simultaneously; normally associated with a multidrop line, where a number of terminals share the line. An example is the Associated or United Press Teletype News Distribution System.

Brooks Act

The law that gave the General Services Administration (GSA) its ADP procurement authority.

Browse

A standard data base management function that allows users to look at a set

of data base records in a predefined order. Most browsing utilities maintained in data base management products allow a user to stop the listing of information either temporarily or permanently. Browsing functions are extremely useful for quick-glance reports as well as for data base verification procedures.

Browsing

System capability to find a feature or set of features in a data base.

Buffer

(1) The internal portion of a data processing system (memory) in which information is temporarily stored during transfer from one device to another. A buffer is useful not only for holding data, but also for adjusting for differences in speeds between the devices, or between the device and the communications facility.

(2) A user-specified size for, or area of specified distance (radius) around, any map feature, item, or items referenced in an active table.

Bug

In computer software, a mistake or malfunction.

BUILD

A mode of processing under the Timesharing system in which data files are created.

Bundle Table

A preset table of graphic primitive attributes.

Bundled

A term used to describe a set of software systems, hardware systems, and data bases that, in concert, create a specific application or group of applications. Bundled systems purchased from private sector companies are often referred to as stand-alone and turnkey systems.

Burst

In data communication, a sequence of signals counted as one unit in accordance with some specific criterion or measure.

Business Graphics

Data stored in a system with statistical analyses represented pictorially in standard corporate "monograph" or "annual report" format using various graphs,

diagrams, and charts.

Byte

(1)   The amount of space used to store one alphabetic or symbolic character.

(2)   A binary character string operated upon as a unit and usually shorter than
       a computer word.

(3)   A group of adjacent binary digits operated on as a unit and usually
       shorter than a computer word (frequently connotes a group of eight bits).

Cadaster, Cadastre

(1) An official register of the quantity, value, and ownership of real estate, used in apportioning taxes.

(2) A record of interests in land, encompassing both the nature and extent of these interests. An interest in land may be construed as a legal right capable of ownership or more broadly interpreted to include any uniquely recognized relationship among people with regard to the acquisition and management of land.

Cadastral Mapping

A term used to describe the assembly of all legally defined parcels into a common environment. It may also describe the process of mapping a single cadastral parcel. It is not synonymous with tax mapping. Cadastral mapping results in a cadastral overlay for a multipurpose cadastre.

Cadastral Overlay

A basic element in the multipurpose cadastre specification. The cadastral overlay represents an extension of a base map to depict the pattern of land rights ownership in an area. The National Research Council recommends basing the development of a digital cadastral overlay map on legal descriptions tied to elements of the geodetic control network available in an area.

Cadastral Parcel

The smallest legally defined piece of land, used for purposes of recording ownership; also, a specific type of Federal Cadastral Survey.

Cadastral Plat

A plat showing the boundaries of subdivisions of land, usually with the bearings and lengths thereof and the areas of individual tracts, used for describing and recording ownership. A cadastral plat may also show culture, drainage, and other features relating to the value and use of land. Official Federal Survey plats are commonly at a scale of 40 chains to the inch.

Cadastral Survey

A survey which creates, marks, defines, retraces, or reestablishes the boundaries and subdivisions of the public lands of the United States.

Cadastral Survey Data

Data used in cadastral surveys for creating, marking, defining, retracing, or reestablishing the boundaries and subdivisions of the public lands of the United States. Cadastral survey data consists of bearings and distances for original

surveys, and metes and bounds surveys. From the bearings and distances, geographic coordinates can be computed. The computed geographic coordinates permit the spatial display of townships and related surveys as they relate to the earth's surface and to one another. Geographic coordinates are the linking mechanism between resource data and the land in which resources are located. Technically, the control is not part of the cadastral data.

Call

(1)   A single direction-distance element of a relative boundary description or legal description. An example of a simple angle-distance call would be 23.56 feet, bearing north, 25 degrees 32 minutes east.

(2)   Used in programming to access a subroutine.

Cancel Key

A key (or combination of keys) that stops a computer from completing the last command (e.g., query or print) issued; the key that allows an operator to leave an application.

Cancellation

An abrogation of a right in the public lands because of noncompliance with the public land laws or because of expiration of time limits.

Canonical Correlation

One of several procedures for enhancing spatial classes by transforming digital values onto an alternative set of measurement axes.

Card Format

Format specified by user for printout.

Card Image

A representation in computer storage of the hole patterns of a punched card. The holes are represented by one binary digit and the spaces are represented by the other binary digit.

Cardin

A subsystem under the Timesharing System allowing the user to build and modify data files.

Cardinal Directions

Astronomic north, south, east, or west.

Carriage

A term used to describe a class of printer that generates one character at a time rather than one line at a time. Carriage printers operate by running a sliding print head from one end of a printer carriage to the other. Most carriage printers optimize on printer time by supporting features such as two-way printing.

Cartesian Coordinates

Any coordinate system consisting of a position in a two- or three-dimensional reference frame. Cartesian coordinates are assigned to a position relative to two or three intersecting, perpendicular lines. Each position in a Cartesian reference frame is represented with an ordered pair or triple of real numbers. The rectangular or cubic nature of Cartesian systems makes many simple numerical procedures from analytical geometry useful in spatial data analytical applications. Most geographic information systems create spatial information in some Cartesian coordinate system primarily because data capture devices return rectangular coordinate pairs as output. Most spatial information management systems use Cartesian coordinate systems that are mathematically related to standard spherical coordinates (latitude and longitude). Two of the more common rectangular coordinate systems employed in spatial data bases are State Plane coordinates and Universal Transverse Mercator coordinates.

Cartographic

Pertaining to the art, science, and technology of expressing graphically, by maps, charts, three-dimensional models and globes, the known physical features of the earth or any heavenly body, at any scale. In particular, cartography is concerned with all phases of map finishing, including the designing of format and symbolization; drafting, editing, and proofing of map content; and specifying requirements for reproduction.

Cartographic Data Base(s)

(1) A data base containing data elements that are referenced according to their two-dimensional locations and structured according to user needs for storing, retrieving, and manipulating such data.

(2) (Digital) A data base that supports the production of computer generated maps. A significant portion of the cartographic data bases generated to date have been designed primarily to reproduce planimetric base maps at variable scales using a number of symbolic schemes. Many modern cartographic systems that also support analytical functions require cartographic data bases to retain a large amount of attribute information that describes individual elements in a cartographic data base. Non-graphic data related to individual cartographic data base features are called attributes. A special set of attributes, which may be assigned to

digital cartographic data bases, describes the relationships between data base elements on the cartographic base.

Cartographic Data Editing

A series of procedures that allow a user to edit and update map data bases. Cartographic editing functions are performed using interactive graphic systems often called computer-aided mapping systems. The general graphic editing functions required for cartographic systems are similar to those provided in standard computer-aided design systems. These functions include line data entry, arc data entry, text data entry, map element modification (move element, copy element, connect element, and alter element display), map element deletion, and the generation of custom displays to user-specified scales.

Cartographic Feature Placement

The capability of placing bars, north arrows, test files, keys, and titles at user-specified locations.

Cartographic Model

A flow diagram depicting a process of combining and analyzing multiple layers of mapped information to create a new synthesized map product.

Cartographic Modeling

The process of combining different layers of map information in a predetermined manner to create a new, synthesized product. The planner can then use the cartographic model as a base for decision-making.

Cartographic Output System (COS)

The resource software dealing with outputting results, especially from plotters.

Cartography

The study of maps, including the art, science, and technology of map making.

Case

(1)   The group of official documents that record the facts, or actions taken, on a specific application, such as an oil and gas lease, exchange, airport lease, easement acquisition, etc.

(2)   A command verb used under the Editor subsystem telling the computer to act upon any command verb and seek data in upper or lower case letters.

(3)   A multi-branch conditional statement that allows for selective execution of

bounded groups of program statements, depending upon the value of a control expression.

Case Abstract

An output product of the Case Recordation or Mining Claim Recordation system. It provides a decodified print of the data pertaining to a specific case file. The data include the legal authority, proprietor, address of a party of interest in the case, legal land description, and actions which have taken place on the case. A Serial Register Page is the manual equivalent of the case abstract.

Case Abstract Screen

The primary screen used for the entry of data into the Bureau's Case Recordation System. There are 34 individual items (located within six Records) which make up the Case Abstract Screen. It is associated with six other screens that provide the end-user the capability to add additional information regarding Accounting, Proprietor, Location, Action, and General Remarks.

Case File

A file or folder containing all legal documents and hard copies of data relating to a case.

Case Processing

(1)   A means of working through a land action and tracking that action to the land records.

(2)   A term used to describe the automation of any process associated with a particular activity. Case processing is most often associated with spatial information management systems in activities such as permit management and subdivision ordinance approval processes.

Case Recordation (CR)

The Bureau's standard case records system. CR utilizes serial numbers as the key data feature. This system resides on the Service Center's DPS 8/70 mainframe and is accessed through the States' Level 6 computers.

Case Type

Relates to the identification of specific types of cases by a 6-digit numerical code; provides legal authority for the type of case identified.

Catchment

Another term used to describe a basin. Catchment refers to a closed area

within which the drainage patterns are consistent in some way for all water
falling into the area. Catchment is often applied to closed areas where the
water drains into a single feature (lake, pond, or depression) within the
catchment. A catchment can be either natural or manmade.

Cathode Ray Tube (CRT)

A video device resembling a television tube but having greater resolution. The
CRT displays text as it is represented at the keyboard and retrieved from
storage. Coupled with a keyboard, the CRT can be used to form a terminal.

Cell

A single unit of "memory" consisting of some fixed number of "bytes" that is
treated as a self-contained package of data files. In grid cell files, one or more
attributes are assigned to each element in a mesh of cells: the attributes used
to store descriptive information about the land area theoretically covered by the
cell. The most common cell in spatial data bases is a rectangle. Each cell in
a rectangular mesh is referenced with a row and column address and is
identical in length and width. The two most common types of rectangular grid
cells are square cells and cells having height to width ratios of five-to-four, the
most common ratio found in line printer character sizes. Cells can be irregular
in shape such as the cells in a triangulated network, formed by combining
groups of three discrete elevations or other three dimensional coordinates. This
variety of cell provides an unambiguous interpretation of surface water
phenomena such as slope and aspect and is therefore extremely useful in
surface and subsurface feature modeling. A shortcoming of irregular cells is
the problem of locating irregular cells randomly in a data base, since they do
not occur at locations that can be determined using the simple methods
available to users of regular grid cell data bases.

Cell Editing

The ability to edit cell values and allow for the renumbering of cells.

Cell Processing

The analysis of spatial data whereby cell locations from one map are matched
with the same locations on another. Grids can be manipulated using fairly
simple programs; most digital remotely sensed data (e.g., LANDSAT, etc.) are
stored as cell maps. The maps look "blocky." Also called Raster Processing.

Census County Division

A division for Census Bureau statistical assessment used primarily in rural
counties. These zones were established in cooperation with state and local
governments using boundaries that seldom change and that are easily located.
Census County Divisions are often called Minor Civil Divisions in some states.

Census Geography

The system used for coding those locations that are contained in the data released by the U.S. Census, with a hierarchy of sets of areas providing alternative levels of geographic precision, including, for example, census blocks, enumeration districts, census tracts, minor civil divisions ("MCD's"), etc.

Center

A function that accepts a line, area, or feature and returns an approximate center point for the feature. Operations that are available include linear functions that return the walking distance center of a feature and area functions that return the center of gravity for a feature.

Centerline Definition

In many design data bases, the defining of an object by determining a coordinate estimate for the centerline of the object. This requirement occurs most often in the design and/or digitizing of roads. Most small-scale maps represent road element as lines. These lines are theoretically estimates of the centerlines for the road being represented. In local government information systems, the spatial accuracy of small-scale maps can be enhanced by substituting coarse digitized lines with accurate coordinate estimates for street centerlines, as these elements are generated during construction of the high quality cadastral and rights-of-way base maps.

Centermost Coding

A technique of assigning values to irregular and regular grid cell data bases that calculates the value at the center point of each cell in a mesh of cells. A number of extremely fast data processing techniques have been developed to perform centermost evaluations. This coding technique for areal grid cell data bases can lead to misleading results if the minimum mapping unit in a data base is extremely small compared with the cell size, e.g., a small lake at the center of a square-mile grid cell unit.

Central Processing Unit (CPU)

(1) That portion of the computer which is used to control the hardware components and flow of data and to perform computations. It consists of the computer's arithmetic/ logical unit, and the control section, i.e., "the brain."

(2) A unit of a computer that includes circuits that control the interpretation and execution of instructions. In addition, the CPU oversees the use of memory and monitors the input/output operations.

Central Processor

A central processing unit (CPU).

Centroid

(1)   A single coordinate locator assigned to an area. In many applications, users require a single coordinate to represent a closed area. In digitized areal coordinate data bases, this point is often derived mathematically from the coordinates describing the polygon boundary of an area. Care must be taken in this automated assignment, however, because most algorithms are not designed to handle irregularly shaped areas. The assignment of a centroid usually occurs for one of four reasons. First, a centroid may be used as a convenient location for plotting descriptive information about an area. Second, the point is often strategically assigned to facilitate the generation of a topological data structure from a series of random boundaries. Third, the point can be assigned as a center of gravity for certain analytical applications. Fourth, the coordinate can serve as an appropriate loading point for values assigned to the entire areal unit. This last function is often used to generate surface representational maps, such as contours from data that are based on discrete areas.

(2)   A point interior to a polygon whose coordinates are the averages of the corresponding coordinates for all points included in the given area.

(3)   The center of gravity of an object or, as concerned with mapping, the mathematical center of a two-dimensional area. When a reference point is needed for the location of an area, the paracentroid or a visual center normally is more convenient.

Chain

(1)   Unit of distance measure used by Federal Cadastral Survey. It is 66 feet in length.

(2)   A term often used synonymously with arc, segment, and edge. Refers most often to a string of coordinates that represent a boundary between two and only two areas. In a topological data structure, a chain is often described as a series of coordinates (or connected linear shapes) that divide two specified areas. The attributes associated with the chain are the areas (polygons) that lie on either side of the boundary. Topological data structures also describe the chains that must be connected to form each polygon in an areal coordinate data base.

Channel

(1)   A path for handling the electrical communications between two or more points, normally involving the transfer of data or control information. A

channel in this sense is also called a path, link, or circuit.

(2)   A device for controlling and storing data as well as for transferring information between a computer and it's connected input/output devices.

Character

A letter, digit, or other symbol used for the organization, control, and representation of data.

Character (ADP)

A letter, figure, number, punctuation mark, or other sign contained in a message. There may also be characters for special symbols and some control functions.

Character (Telecommunications)

A unit of information, usually associated with people-language style of presenting information. Because so much data is handled and transferred in this style, the term is also frequently used to mean one bit pattern in a particular data code.

Character Enhancement

The ability to bold, italicize, and underline strings of characters independently.

Character Set

(1)   A set of unique representations called characters, e.g., the 26 letters of the English alphabet, 0 and 1 of the boolean alphabet, the set of signals in the Morse code alphabet, and the 128 characters of the ASCII alphabet.

(2)   In assembler programming, the alphabetic characters A through Z; $, #, @; the digits 0 through 9; and the special characters + - * / , () = . ' &; and the blank character.

Characters Per Second (CPS)

The number of characters (represented by strings of binary digits) that pass a given point in a channel in a second. This measurement is used most frequently for parallel transmission in which groups of bits, representing individual characters, are simultaneously sent over a "ribbon" of parallel wires. This form of measurement is popular for microcomputer-based systems. Contrast with Bits Per Second.

Chip

A tiny silicon wafer etched with electronic components; an integrated circuit.

Choropleth Map

A map that usually depicts the spatial distribution of a phenomenon (e.g., average income of the families in each census tract of a city) by assigning specific shades, patterns, and/or colors to individual areas based on statistical information related to an area. Also referred to as conformant maps, choropleth displays portray an equal distribution of a phenomenon across the entire geographical unit represented by the specific shade, pattern, or color. A common form of a choropleth map displays the level of a particular phenomenon for each county in a state or each state across the U.S. Most computer-generated choropleth maps are character maps from line printers or shade maps from dot matrix, electrostatic, or pen plotters. With the advent of improved color terminal technology, however, many choropleth display mapping programs are available to generate color pattern statistical maps to raster display screens. A number of these programs have migrated to microcomputer software packages. Microcomputer choropleth mapping packages are designed primarily to produce a standard map display from an integrated closed boundary (polygon) file. Most microcomputer systems are designed to handle either extremely small or highly partitioned data sets.

Chromatic

Of or relating to color or color phenomena; multicolored.

Circuit

In data communications, a means of two-way communication between two data terminal installations.

Circular Map Accuracy Standard

A method for depicting the locational accuracy of the average feature depicted on a map. The Circular Map accuracy measurement is a distance that represents the radius of a circle around each point on a map. The size of the circle is determined by whether 95 percent of the real world features represented on the map actually fall within the circles around the points representing those features. The Circular Map Accuracy Standard represents the minimum acceptable level of reliability for a map. The United States standard is 1 part in 40 (to scale) for small-scale maps and 1 part in 30 (to scale) for large-scale maps. This means that for a 1:24,000 map, 95 percent of the features should fall within a circle having a 50 foot radius (1 part in 40 to scale).

Claimant

An individual or other entity asserting title to, or rights in, public lands.

Class (Image Processing)

A category into which a number of discrete cells in an image data base are placed based on like spectral characteristics. Most common classification procedures in image processing systems are designed to interpret cells into classes that are meaningful to people interpreting the data, e.g. land cover.

Classification

Designation of public lands as being valuable or suitable for specific purposes, uses, or resources.

Classification of Data

The process of dividing and arranging continuous data values into broad significant range categories encompassing specific ranges of values.

Classification of Lands

The process of determining whether lands are more valuable or suitable for transfer or use under particular provisions of various public land laws than for retention in federal ownership for multiple-use management.

Classification Withdrawal

A withdrawal of public lands which is made pending examination of the lands to determine their suitability for classification for certain purposes.

Classified Imagery

Data generated in image processing systems that classifies each cell in the data base into a discrete category on the basis of some function. The most common form of classifying imagery is to a "closest" category based on a combination of data values, usually reflectance values for a particular band of radiation. These groups of "closest" categories are then combined into discrete land feature classes based on ground verification and manual image interpretation techniques. The resulting classified image reduces all cells into a manageable number of categories.

Clear List Approved

The approved title document with certification that conveys title to public land selected as indemnity for school lands lost by natural deficiency or prior appropriation.

Clear Title

Title to land that is free from encumbrances.

Clock (Telecommunication)

A source of precisely spaced time signals that provide the basis for imposing time spacing on transmitted bit patterns and interpreting received bit patterns. These signals can be located in the business machine or in the modem.

Closed

A term used to describe a feature whose border, if followed, returns to the beginning point. Closed features are represented in coordinate data bases by the last coordinate in a string being equal to the first. Closed features represent areas and are often called polygons.

Cluster - Statistical

A group composed of homogeneous or similar ("like") units.

Cluster Grouping Analysis

(1)   The measurement of the statistics of each cluster group (mean, standard deviation, population, etc.); the measurement of the distance between clusters using units of standard deviation; the assignment of each observed unit to a cluster on the basis of the unit's measurements.

(2)   As used in remote sensing digital image analysis, the grouping of a non-dimensional set of observations into natural spatial classes.

Clustering

Storing records that are frequently used together in proximity to each other on a storage medium such as a disk.

Clustering Algorithm

The calculation of statistics using an algorithm that separately clusters data within individual training fields or clusters data combined from several fields. The clustering algorithm provides user options for specifying parameters such as number of classes, minimum number of pixels/class, maximum standard deviation per class, criteria for combining classes, etc.

Clustering Operations

Operations allowing one to agglomerate (cluster) individual items or features into groups.

Code (Data)

(1)   A set of unambiguous rules specifying the manner in which data may be represented in a discrete form.

(2)   Loosely, one or more computer programs or part of a computer program.

(3)   An encryption of data for security purposes.

(4)   Procedures required to convert a data set from analog to machine readable form. The data coding of mapped information often requires specialized equipment and software packages such as electronic digitizers and coordinate geometry procedures.

(5)   To represent data or a computer program in a symbolic form that can be accepted by a processor.

(6)   To write a routine.

Code Editing

The capability to (1) add data files without regard to size, area covered, or scale; (2) provide for the creation of status reports on the contents and conditions of a data base; (3) edit codes for attribute and values; (4) query a data base by positioning the cursor on the graphics; (5) interactively browse through files in a data base; (6) provide data status, e.g., creation dates, amount of data, last used, and number of times used; (7) edit cell values, or renumber; and (8) specify user access.

Code Enforcement Systems

A procedure that allows government organizations to perform enforcement functions in association with applicable land-related rules, ordinances, and statutes. Spatial information systems are often extremely useful in aiding code enforcement procedures because of the ability to spatially relate phenomena to other phenomena. Examples of code enforcement procedures include (1) building code procedures that compare structure inventory data bases to highlight those structures that may not be in compliance and (2) methods available to assure that students attending public schools actually reside in the district of the school they attend.

COGO/Legal Description Interactive Graphics

A complete set of operations that support the viewing of a land network map as it is being generated; also an interactive graphic environment that supports the generation of point, line, and area features as they are developed during an interpretation session. The term can also refer to a set of graphic generation functions available from the language that allow the user to set a feature's displayable characteristics.

Collate

To combine items from two or more ordered sets into one set having a specified order not necessarily the same as any of the original sets.

Color Composite

A picture produced by assigning a color to a particular remote sensing spectral band; usually designed to simulate either natural color or color infrared renditions.

Color Enhancement

Utilization of contrasting colors (rather than differences in grey values) to indicate subtle changes in film density; can be applied in single or multi-emulsion situations.

Color Fill

Flooding an area with color or shading.

Color Infrared Film

Photographic film sensitive to energy in the visible and near-infrared wavelengths. Color infrared film is especially useful for detecting changes in the condition of a vegetative canopy, which are often manifested in the near-infrared region of the spectrum. Note that color infrared film is not sensitive in the thermal infrared region and therefore cannot be used as a heat-sensitive detector.

Color Proof

A multicolored print made by applying colored dyes to a proof sheet and making consecutive exposures through the various negatives. Each color requires separate exposure and is applied over the previous color exposures to form the composite multicolored proof.

Color Separation

The preparation of separate film plates for each type of map data to be reproduced in a separate color.

Color-of-Title

The appearance or semblance of title. Because of some defect, the title in reality falls short of actual, established title. If a claim to a piece of real property is based upon some written instrument, although a defective one, the person is said to have "color of title." Federal withdrawn land is not subject to

the Color-of-Title Act.

Command Language

(1) A set of procedural operators with a related syntax, used to indicate the functions to be performed by an operating system. Synonymous with Control Language.

(2) Instructions which are normally entered via the operator's console and acted upon immediately. These instructions control the activity of a computer system and consist of imperative words or phrases with modifying phrases.

Command Processor

System software that allows the user to give instructions to the computer by entering commands; contrasts with a menu-driven system.

Command Verb

An instruction to the computer to perform one or more operations.

Commerce Business Daily (CBD)

A publication in which proposed procurements in excess of $25,000 (or $50,000 for use of Group 70 or Group 58 Federal Supply Schedules) must be published. The CBD also publishes general government notices to the public. It is printed each workday by the Department of Commerce.

Commercial Off-The-Shelf Software (COTS)

Software currently available from commercial vendors to meet a specified application or need.

Commerciality

Refers to the practice of exemption from cost and pricing data if the vendor can prove that "substantial quantities have been sold to the general public" at a given or higher price.

Commodity Code

The code of a mineral resource occurring upon or within the crust of the earth and of value for trade or commerce.

Common Business Oriented Language (COBOL)

A programming language well suited to business applications involving complex data records and large amounts of printed output.

Common Data Structure

Data structure design for the interim system development that is common to all the capabilities for data entry, analysis, manipulation and output. Its advantage is to allow movement between GIS functions without duplicating files. Mapped information is stored only once.

Communications Channel

A medium for carrying data between devices or locations.

Comparable Sales

An appraisal technique for estimating the Fair Market Value of property based on the current market.

Compatibility

The ability of two or more systems to exchange information without the need for any adaptations or modifications; compare with interoperability. In geographic data bases, there are two types of compatibility. First, a data structure can be directly compatible with another. For instance, two systems using polygon data structures of different formats are directly compatible since a relatively simple program can be written to restructure one polygon data base to look like the other. A second class of compatibility is called logical compatibility. In this form, a data structure is designed so that it can be formed into a number of different types of data structures. A topological data structure, for instance, is logically equivalent to a polygon data structure since procedures can be derived that convert the segment-oriented topological data base into a polygon data structure.

Compensatory Royalty

Money paid by an oil and gas lessee to compensate the Federal Government for the loss of royalty on oil or gas drained from the leased lands through wells on other lands from which (1) the Government receives no royalty or (2) receives royalty at a lower rate than would be paid for production from the leased lands which are being drained.

Competitive Lease

A mineral lease that is issued to the successful bidder at public auction or through sealed bids.

Competitive Range

The concept of ranking multiple proposals (in response to a Request for Proposal) by price or technical score, or a combination of both, so as to

negotiate only with the offerors considered viable for potential award.

Compilation

The translation of programs from a human-oriented "programming language" into a machine-oriented form by making use of the overall logic structure of the programs, or generating more than one "machine instruction" for each symbolic "statement", or both, as well as by performing the function of an "assembler".

Compile

To prepare a machine language program from a computer program written in another programming language by making use of the overall logic structure of the program, or generating more than one machine instruction for each symbolic statement, or both, as well as performing the function of an assembler. Contrast with Assemble, Interpret.

Compiler

(1)   A computer program used to compile. Contrast with Assembler, Interpreter.

(2)   A computer program that converts a source language into an object language.

(3)   A device used to translate high-level language, such as FORTRAN or COBOL, into machine-executable code.

Complement

(1)   To flip (transfer) every "bit" in a "byte" to its opposite setting; all 1's become 0's and vice versa. When used as a noun, the term means "the opposite".

(2)   A number that can be derived from a specified number by subtracting it from that specified number. For example, in "radix notation", the specified number may be a given power of "radix" or one less than a given power of radix. The negative of a number is often represented by its complement.

Completeness

(1)   A measure of data integrity indicating whether a target data base is completed based on specified criteria. The most common measure of completeness is to represent the percentage of the data set that is available.

(2)   A characteristic of a data base that indicates how much of a proposed data base has been implemented. Completeness measures are usually

based on predefined objectives that describe fully how the data base will operate and what it will contain when finished.

Completion

The process of finishing and equipping an oil or gas well for production after the well has been drilled to its total depth and tests have indicated that the well may produce commercial quantities of oil or gas.

Component

(1)   Any logical grouping of graphic primitives, e.g., a bar scale containing text, line, and fill.

(2)   A pair of values representing two-dimensional locations with respect to an origin point, e.g., x, y, or longitude/latitude.

(3)   A basic part or piece of equipment connected to and associated with a computer system.

(4)   A part of a system being modeled; for information models, the components are object types, relationships, operations, data elements, and regulations.

Composite

A print containing the reproducible information from two or more color separation drawings stored in register.

Composite Map(s)

Maps which can be used to create other maps that contain information from two or more spatial data bases. These combination spatial data bases are called composite maps. The method used most often in generating composite maps is to merge data from two or more areal grid cell data bases. Most composite grid cell base maps are produced on line printers, with each line printer character representing a single cell in the composite file. Other raster devices can also be used to produce maps from composite areal grid cell data bases as long as the plotter spot size (raster) and the data base grid cell size are coordinated, based on the scale required for the output map. In modern geographic information systems, areal coordinate data bases can also be overlaid and reformed into composite base maps. This type of procedure produces a set of output areas that contain attributes available on all of the input maps. Composite mapping is then completed by assigning shades, patterns, and/or colors to each area that meets a specific criterion, based on the composite attributes available to each polygon. Traditional choropleth mapping packages are used to generate most of the composite maps in coordinate based geographic information management systems.

Compressed Sequential Record

An areal grid cell data structure that is extremely compact in design. The structure economically stores information in a rectangular grid by using new row flags and column numbers. One major drawback of this file structure is that it must remain in a fixed sequential form to be meaningful. Each record is dependent on a previous record to complete the description of the string of cells represented in the record (i.e., row number, initial column number). If the order of the file is disturbed, the integrity of the data base is destroyed. However, the compressed sequential record is convenient for long-term storage of moderately complex rectangular grid cell data bases. The compressed sequential record is an example of a run-length coded grid cell data base.

Compression

A series of techniques used for the reduction of space, bandwidth, cost, transmission, generating time, and storage of data. These techniques are eliminate repetition, remove irrelevancies, and the employ special coding techniques, such as run-length encoding.

Compute (Cadastral)

The process of adjusting bearings and distances of cadastral surveys using accepted methods to determine the geographic coordinates of corners that were established by the survey process.

Computer

(1)   A data processor unit that can perform substantial computation, including numerous arithmetic or logic operations, without intervention by a human operator during a run.

(2)   A machine capable of accepting information, performing calculations on the information, and supplying the results of the calculations. The computer is usually composed of input and output devices, storage devices, arithmetic and logical units, and a control unit.

Computer-Aided Design (CAD)

Software that can assist an operator in perform standard engineering and architecture design functions. Most computer-aided design systems have a variety of integrated devices that allow the designer to simulate standard manual methods used to perform design operations. The most common applications for computer-aided design involve the mechanical design of machines and other tools and parts, the electronic design of printed circuit boards, the architectural design of buildings, the planimetric or topographic design of maps, and a large number of other design functions that fall under the title of computer aided drafting. Most design systems are purchased as bundled or turnkey systems, and many of these, particularly drafting systems, have now migrated to smaller,

less expensive computers.

Computer-Aided Drafting

An interactive graphics system that supports a subset of the functions common to computer-aided design systems. These drafting systems are designed primarily to simulate the procedures that a draftsman would perform in generating a production drawing. Drafting systems differ from mapping systems in that most drafting systems provide little capability of assigning intelligence to a generated map.

Computer-Aided Mapping (CAM)

Software that assists an operator in performing standard mapping functions.

Computer Architecture

The design of a computer system's memory, peripherals, central processor, and, especially, the circuitry for control, logic, storage, and retrieval.

Computer Assisted Instruction (CAI)

Instruction in which students interact with a computer. On the Modernization System CAI will include online help screens, an online training mode, and CAI tutorials. These will include a variety of interactive instructional modes are used to include drill-and-practice, tutorial, help screens, dialogue, simulations, and games.

Computer Cartography

Refers to any computer-based mapping or graphic operation. In the past ten years, computer-driven graphics devices have made it possible to combine mathematical precision with high-quality graphics at production rates not possible with manual cartography. The ability to regenerate computer maps provides an extremely efficient method for altering an existing set of maps. The two basic forms of computer cartographic devices are raster and vector. Raster hardware assigns a value (color, character, black/white) to each location in a lattice of locations (graphic frame, pixels). Vector devices express plotting functions in terms of drawing a line (vector) between two unique locations on a plotting surface. Plotting hardware used in modern computer cartographic systems includes multiple and single pen plotters (flatbed and drum), photoplotters, electrostatic plotters, plotting terminals (storage tube and refresh), ink jet plotters, dot matrix impact printers, laser scanners, laser printers, and laser photocomposition devices. Line printers continue to provide an inexpensive source for low- resolution computer mapping. The resolutions on most cartographic devices range from 0.05 to 0.001 inches.

Computer Compatible Format

Data in a format which can be readily input into a computer.

Computer Literacy

The ADP knowledge required to effectively and efficiently perform a job, making the best use of the computer resources available.

Computer Network

(1)   A complex consisting of two or more interconnected computers.

(2)   Refers to the computer(s), programs, terminals, and data communication necessary to facilitate geographical distribution of computer operations in addition to time-sharing operations.

Computer Output Microfilm (COM)

A technique used to record output from a computer as very small images on roll or sheet film.

Computer Program

A series of instructions or statements in a form acceptable to a computer prepared in order to achieve a certain result. A program may include the use of an assembler, a compiler, an interpreter, or a translator to prepare the program for execution as well as to execute it.

Computer Specialist

The individual who serves as the primary point for program planning, equipment needs, application potential, and system support for local ADP efforts and who coordinates training needs.

Computer System

(1)   A functional unit, consisting of one or more computers and associated software, that uses common storage for all or part of a program and also for all or part of the data necessary for the execution of the program; executes user-written or user-designated programs; performs user-designated data manipulation, including arithmetic operations and logic operations; and can execute programs that modify themselves during their execution. A computer system may be a stand-alone unit or may consist of several interconnected units. Synonymous with ADP system, computing system.

(2)   The actual computer hardware, which consists of the processor unit, operator terminal, input and output devices, and auxiliary storage devices.

Computerized Branch Exchange (CBX)

A telephone switching mechanism under the control of a computer. A CBX supports such services as conference calling, automatic redialing of a line if busy, determining least-cost routing for a telephone call, and direct-access inward dialing to avoid going through a company's switchboard.

Condemnation

In real property law, the process by which property of a private owner is taken for public use without the owner's consent but with an award of payment as just compensation. It has the nature of a forced sale, and the condemner has the position toward the owner of a buyer toward a seller.

Confidence Factors

A set of numbers indicating relative confidence in the accuracy of a graphical data element. Individual numbers may represent age of source, type of source, amount of checking of source, progress of construction and inspection thereof, digitization technique used, quality of survey for surveyed points, or seriousness of need for improved accuracy.

Confidence Interval

Statement of accuracy based on a statistic whose distribution function is known; e.g., the normal distribution function or bivariate normal distribution function. Errors are stated as some percentage of the total probability of 100 percent, e.g., a 90 percent assurance level.

Configuration

(1)   The arrangement of a computer system or network as defined by the nature, number, and the chief characteristics of its functional units. More specifically, the term configuration may refer to a hardware configuration or a software configuration.

(2)   The requirements, design, and implementation that define a particular version of a system or system component.

(3)   The functional and/or physical characteristics of hardware/software as set forth in technical documentation and achieved in a product.

(4)   The relationship of data-processing elements to each other. A hardware configuration describes the way various devices in a system are electronically connected.

Configuration Item

A collection of hardware or software elements treated as a unit for the purpose of configuration management.

Configuration Management

(1)   The process of identifying and defining the configuration items in a system, controlling the release and change of these items throughout the system life cycle, recording and reporting the status of configuration items and change requests, and verifying the completeness and correctness of configuration items.

(2)   A discipline applying technical and administrative direction and surveillance to (a) identify and document the functional and physical characteristics of a configuration item, (b) control changes to those characteristics, and (c) record and report change processing and implementation status.

(3)   The creation and enforcement of procedures and standards to establish a compatible, Bureauwide computer environment. This encompasses the installation and maintenance of operating systems, hardware, software, and data communications.

(4)   In systems network architecture, one of the types of network services in the system services control point; this management provides for the activation, deactivation, and maintenance of the status of the physical units and data links. Configuration management also provides for start up, shut down, and restart network elements. It is also referred to as configuration services.

Conflict

In connection with adjudication, any factor with respect to land status which serves as a bar to the approval of an application, often involving an application which was filed or allowed prior to, or simultaneously with, the filing of another application for similar rights on the same lands.

Conflict Resolution

Resolution of conflicts between lines in a data base, most commonly used in the correction of line conflicts between digitized parcels. The most common form of correction is the forcing of one line to conform to another through a number of variants. The input is two topological lines/area boundaries; the output consists of one or more corrected line segments.

Connectivity

(1)   Refers to communications software and devices, protocols, and other

interfacing facilities in automated systems.

(2)   A relationship between elements of an automated mapping data base that
       describes what lines connect to each line in the data base. A number
       of intelligent automated mapping functions require connectivity
       relationships between lines. Procedures used in the development of linear
       network data bases use connectivity between digitized lines as the basis
       for establishing explicit relationships between road segments and
       intersections.   Many thematic digitizing routines use connectivity
       relationships to perform functions that chain digitized line segments into
       closed polygon shapes.

Connectivity Analysis

Analytical technique to determine whether a set of points (nodes) or lines are
connected to each other.

Connector Record

A data base record that allows a many-to-many relationship between records.

Contention (ADP)

A method of line control in which the terminals request transmission. If the
channel in question is free, transmission proceeds; if not, the terminal must wait
until the channel becomes free. The queue of contending requests may be
built up by the computer, and this can be either in a prearranged sequence or
in the sequence in which the requests are made. Also pertains to multiple
Input/Output requests or core channel usage where multiple programs or jobs
are contending for the same resources.

Contest

Proceedings against a filing, claim, or entry alleging that it does not meet the
requirements of the public land laws. It may be initiated by the government or
by an adverse claimant.

Contiguity Analysis

(1)   Analytical technique to determine whether a set of areas (polygons) are
       situated next to each other; sometimes referred to as adjacency analysis.

(2)   The process of retrieving geographic features that are in juxtaposition
       (share a common border) and comparing them to a set of other features.

Contiguity Analysis-Mapping

Identifying areas whose types are contiguous to one another; e.g., the
identification of all areas of valley sagebrush that are contiguous to ponderosa

pine forests. This would be useful in wildlife management to determine habitats of animals using forests for cover and sagebrush for browse.

Contiguous Lands and Contiguous Legal Subdivisions

Lands or legal subdivisions having a common boundary.

Continuous Data

Interpolatable data with an infinite number of possible values; usually a gradient of values associated with one theme, such as elevation or slope. (In MOSS and MAPS, continuous = type 8.)

Contour

An imaginary line on the ground, all points of which are at the same elevation above or below a specified datum surface, usually mean sea level.

Contour Map

Statistical maps displaying lines of equal value. Contour maps often depict elevation, but the same mapping procedure can be used to display any attribute that varies across a surface. Two basic forms of contour maps exist for depicting surface values. Isopleth maps (also isopach, isoline, etc.) show lines of equal value; each line is then labeled with the value it represents. Shaded region display maps assign shade patterns to the areas between contour lines. These patterns represent ranges of values.

Contractor

An entity that provides a production service in exchange for a prior agreed-to reimbursement.

Contrast Enhancement

Improvement of relative density differences.

Contrast Stretching

Improving the contrast of images by digital processing. The original range of digital values is expanded to utilize the full contrast range of the recording film or display device.

Control, Basic

In general, coordinated and correlated position data forming a framework to which detail surveys are adjusted. Basic control may be either horizontal or vertical; it is usually executed with greater precision and accuracy than is required for dependent surveys. Also, the point or points permanent in

character within a network of basic control, for which the coordinates and/or elevation to a specific accuracy are known and which are used as origin and closure for making a control survey, or for making an engineering, cadastral, or other survey.

Control, Cadastral (USPLS)

Lines established and marked on the ground by suitable monuments that are used as starting and closing points in surveys of the public domain of the United States. The primary control of the public land surveys of the United States consists of base lines, standard parallels (correction lines), principal meridians, and guide meridians.

Control, Geodetic

A system of horizontal and/or vertical control stations that have been established and adjusted by geodetic methods and in which the shape and size of the earth (geoid) have been considered in position computations.

Control, Horizontal

(1) Network of stations of known geographic or grid positions referred to a common horizontal datum that controls the horizontal positions of mapped features with respect to parallels and meridians, or northing and easting grid lines, shown on the map.

(2) Control with horizontal positions only. The positions may be referred to the geographic parallels and meridians or to other lines of reference, such as plane coordinate axes.

Control, National Control Survey Nets

The two control survey nets being extended over the United States by the National Ocean Survey for the control of nautical charts and topographic maps, and comprising:

    (1) The horizontal-control survey net consisting of arcs of first-order and second-order triangulation and lines of first-order and second-order traverse, a few of which have been executed by the United States Geological Survey, the Corps of Engineers, and other organizations. The data derived in this survey are being (as of 1954) coordinated and correlated on the North American datum of 1927.

    (2) The vertical-control survey net consisting of lines of first-order and second-order spirit leveling which determine the elevations of thousands of benchmarks above a common datum, mean sea level. This net includes lines of levels run by the United States Geological Survey, the Corps of Engineers, and other organizations.

Control, Photo

Any station in a horizontal and vertical control system that is identified on a photograph and used for correlating the data shown on that photograph; also termed photocontrol point, picture control point, and ground control point.

Control, Photogrammetric

Control established by photogrammetric methods as distinguished from control established by ground or other methods.

Control, Survey

A survey in which the figure and size of the earth are taken into account. Surveys are usually prescribed where the areas or distances involved are so great that results of desired accuracy and precision can be obtained only by the processes of control surveying.

Control Character

A character inserted into a data stream for signaling the receiving station to perform a function or to identify the structure of the message. Newer protocols are turning away from character-oriented procedures and leaning toward bit-oriented control procedures.

Control Document Index (CDI)

A reference file consisting of microphotographic copies of legal documents mounted in aperture tabulating cards arranged by State, meridian, and township.

Control Point

Any station in a horizontal and vertical control network that is identified in a data set or photograph and is used for correlating the data shown in that data set or photograph.

Control Program

A program that is designed to schedule and supervise the performance of data processing work by a computing system.

Control Station

A point on the ground whose position (horizontal, vertical) is used as a base for a dependent survey.

Control Station, Horizontal

A station whose position has been accurately determined in X and Y, or latitude and longitude.

Control Survey Classification

A series of designations to classify control surveys according to their precision and accuracy. The highest prescribed order of control surveys is designated first order; the next lower prescribed classification, second order; the lowest, third order. Specifications issued by the Bureau of the Budget in 1958 established three main orders of geodetic control, with additional subdivisions of classes in some of them. Surveys which fail to meet one of the three preceding specifications are called fourth order, although they fail to meet prescribed standards.

Control Surveying, Geodetic

That branch of the art of surveying in which account is taken of the figure and size of the earth. Also called geodetic engineering. In geodetic surveying, prescribed precision and accuracy of results are obtained through the use of special instruments and field methods, and equations based on the geometry of a mathematical figure approximating the earth in form and size.

Control Unit

A device that controls input/output operations at one or more devices.

CONTROL-X

A method used to delete a line of data. Depressing the "control" key and the "X" key on a terminal at the same time causes the computer to ignore the line being typed.

Conversational

Pertaining to a program or a system that carries on a dialog with a terminal user, alternately accepting input and then responding to the input quickly enough for the user to maintain his train of thought.

Convert

To transform data from a particular format into another format.

Conveyance

In real property law, a transfer of legal title to the land.

Coordinate(s)

(1)   An ordered set of values that specify a location.

(2)   Linear or angular quantities, or both, which designate the position of a
      point in relation to a given reference frame. There are two general
      divisions of coordinates used in surveying: polar coordinates and
      rectangular coordinates. These can each be subdivided into three
      classes: plane coordinates, spherical coordinates, and space coordinates.

(3)   An ordered pair (triple) of numbers that when graphed in a particular
      system of coordinates represents the relative location of a particular
      feature. Coordinates are the primary spatial identifiers used in the
      development of computer mapping data bases.

(4)   A pair of values representing two-dimensional locations with respect to
      an origin point on a plane that is oriented by a coordinate system with
      two axes, e.g., x, y, or longitude/latitude. See State Plane Coordinates
      and UTM.

Coordinate Adjustment

The changing of position coordinates in a data base to conform the positions
to a pattern or correct the positions based on more accurate control
information. Coordinate adjustment can be made in both horizontal (x,y) and
vertical (z) directions. Adjustments performed on a large number of data bases
are referred to as mass adjustments. More commonly, adjustments are
performed on a discrete set of points over a limited area using local control
information.

Coordinate Geometry

A family of software packages that convert relative legal boundary descriptions
into coordinate information. These coordinate geometry packages, also referred
to as COGO, provide for transforming legal descriptions and surveyor field notes
into boundary coordinates. The uses of coordinate geometry packages range
from simple verification of the accuracy and closure for parcel boundaries to
the complete data entry of cadastral mapped information. Coordinate geometry
procedures integrated with automated mapping packages provide the most
accurate method for the data entry of cadastral map data and other data
sources that use legal or relative boundary descriptions. A number of accepted
standard methods for coordinate geometry packages have evolved over the
years. These standards include the list of functions available to the surveyor;
the methods used to estimate coordinates from relative descriptions; and
standard procedures for storing temporary data points, archiving calculated
boundary descriptions, and presenting graphical depictions of the boundaries
and points calculated.

Coordinate Pair

Set of Cartesian coordinates describing the location of a point, line, or area (polygon) feature in relation to the common coordinate system of the data base.

Coordinate String Map Files

Files that contain a series of spherical or Cartesian coordinates which represent each identifiable line on a map. These coordinate pairs, if plotted, would recreate the line work of the original map. Almost all coordinate data tag each line on a map with a series of alphanumeric attributes. In many coding schemes, the attributes of a line merely represent how the line is to be drawn on a map, e.g. line weight, line type, color. These attribute coding schemes are common to computer aided drafting and mapping systems. Two methods used to map lines are the polygonal method and the boundary chain method. The polygonal method maintains the boundary description of areas on a map by tagging closed strings of coordinates with attributes related to the area that is delineated. The boundary chain method stores a coordinate string for each line segment representing the border between two and only two areas, storing attributes for the areas on either side of the line. The most common method for distinguishing sides of a chain is to define which area is to the left (or right) as one traverses the line in the direction of digitizing. This method of relative attribute coding is known as left-right geography.

Coordinate to Cell Conversion

Automatic conversion of x,y coordinate data to a cellular format (vector to raster).

Coordinate System(s)

(1)   Any x,y,z numbering system that builds a relationship to the earth's surface.

(2)   A mathematically defined method or ordered set of values used for specifying the location of points, such as latitude, longitude. All locations are referenced to a starting point, allowing depiction of distance and direction. See Geodetic Coordinates, Plane Rectangular Coordinates, Spherical Coordinates, and State Plane Coordinates.

(3)   A particular kind of reference frame or system, such as plane rectangular coordinates or spherical coordinates, which uses linear or angular quantities to designate the position of point within that particular reference frame or system.

Coordinate Transformation

Mathematical conversion of coordinate values from one system to another.

Copyright Software

Legal protection of a vendor's software against any unauthorized duplication.

Core

(1)   A key set of system functions and data bases that support all, or most
      of, the application systems in a complete spatial information management
      system. An example of a core data base a property information data set
      in local government.   A number of varied applications throughout
      government can be driven by the functions available in the core parcel
      attribute system.

(2)   The most accessible information storage, or the main memory, of a
      computer. Another name for central processing unit memory.

(3)   The central or innermost part of anything; the most important part; the
      essence of a matter.

Corner

A physical structure which marks the location of a legal corner or other survey
point. In public land surveys, the term "corner" denotes a point determined by
the surveying process, whereas the "monument" is the physical structure erected
to mark the corner upon the earth's surface. Monument and corner are not
synonymous, though the two terms are often used in the same sense. See
also Monument.

Corner Identifier Interpreter

A function that converts data strings to standard normal forms of corner
identifiers. The interpreter is required to read a random text string and return
a table of values that represent the normal form of the corner identifier.

Corner Joins

The location where up to four contiguous map sheets come together.

Corner Name/Control Routines

Functions that allow standard BLM corner identifiers to be manipulated in some
intelligent way. The following set of functions is designed to provide this
functionality: (1) Validation of corner names, (2) Text string to corner identifier,
and (3) BLM to normal-form corner identifier conversion.

Corner Point Identification

A scheme that covers the identifies all possible corners in original surveys for
an area, provides relationships in the coding system that can be used in

retrieving logical groups of corners, and offers a useful hierarchy of information that can be used to establish meaningful indexes that facilitate individual corner retrieval flexibility.

Corporate

Shared by all members of a group; common; joint.

Corporate Core Data

The subset of corporate data that is accessible by the BLM national headquarters office in Washington, D.C.

Corporate Data

The individual pieces of information (alphanumeric or spatial) needed Bureauwide for BLM to carry out its mission. Corporate data is standardized across the Bureau and is to be shared and combined by offices, usually through automation. There are six criteria to determine if data is corporate; the meeting of any one of which will qualify a piece of information as corporate. The criteria are:

    (1)   Data that is needed in or supplies input to a Washington Office-required report,

    (2)   Data that is shared between states or with the Washington Office,

    (3)   Data that more than one state is using, even if not shared,

    (4)   Data that is needed to respond to many questions at field offices or the Washington Office,

    (5)   Data that documents legal transactions needed to support Bureau mission,

    (6)   Subordinate information needed to obtain required information such as pay - taxes - insurance = net pay; net pay is required, other data is needed to calculate net pay.

Corporate Data Base

A term used to describe a data base that contains information of significant importance to the day-to-day activities of an organization. An example of a corporate data base is the integrated data set that provides information on airline reservations.

Correction

A series of procedures available in spatial data base managers that alter positions for data elements based on more accurate data. A variety of different techniques are available to perform data corrections. In three-dimensional spatial data bases, corrections can be made in both horizontal (x,y) and vertical (z) directions.

Correctness

(1) The extent to which software is free from design defects and from coding defects; that is, fault free.

(2) The extent to which software meets its specified requirements.

(3) The extent to which software meets user expectations.

Corridor Analysis

A geographical information system function that assesses one spatial data base as a function of those portions of the data set that fall along or inside of a predefined corridor. A corridor can be a circle (radius around a point), an arbitrary closed area (polygon), or an area that is calculated based on a line on a map (both closed lines and open lines). The simplest form of corridor analysis is to identify those elements in a spatial data base that are partially or completely inside a corridor. Most turnkey GIS systems also offer a number of additional functions that can be performed on data within corridors.

Corridor Study Mapping

One of the more common applications for geographic information system technology. In this application, a user can determine those portions of a data base surrounding a specific digitized earth feature (e.g., a lake, segment of roadway, or nuclear power plant). Information within a specified distance of the object is extracted and used for display or analysis.

Cost

The concept of "cost" to use in a system as opposed to the vendor's proposed sale price. See FPR 1-4.1102-10 and FIRMR 201-4.1102-10

Cost Benefit Ratio

Ratio obtained from the detailed evaluation of the costs and benefits arising from some investment or operation.

Cost and Pricing Data

Cost and pricing data rules as found in FPR 1-3.870, FAR 15.804 and DAR 3.807

Cost Type Contract

One of a family of contracts wherein the government agrees to pay all allowable costs to perform, with profit based on a method or formula previously agreed upon.

County

The largest territorial division within a state for political, administrative, and geographical purposes (includes borough and parish).

Coupler

A device either built into a terminal or connected to it which allows communication with the central computer over the telephone network.

Covenants Against Encumbrances

A document that certifies that there are no encumbrances on land conveyed; a stipulation against all rights to, or interests in, the land which may subsist in third persons to the diminution of the value of the estate granted.

Coverage Area

The area depicted for a specific theme in a geobased file management system.

CPU Time

Actual computational time necessary to process a set of instructions in the arithmetic and logic units of the computer.

Crossed

A data base management operation that allows two data bases to be compared using one or more specific fields that are available on both data sets. A data crossing operation is often referred to as a match program or a join operation (relational data base terminology).

Cultural Resource Management

Refers to the Bureau's management of historic, prehistoric, and paleontological resource values.

Currency

An assessment of whether information portrayed actually reflects a current, real-world situation.

Cursor

(1)   A special character that appears on a cathode ray tube (CRT) or other
       type of display that shows the operator where the next character is to be
       entered. The cursor is normally a bar, small block, or arrow illuminated
       in high intensity. On many displays, the cursor can be set to blink on
       and off. A cursor can be moved about by cursor control keys, positioned
       automatically under program or system control, or may be moved with a
       mouse or joystick.

(2)   A movable part of an instrument that indicates (x, y) coordinate to the
       machine.

(3)   A handheld, movable part of a digitizer with crosshairs for accurate
       designation of points on an image.

Cursor Driven

(1)   The use of four different keys to locate text (alphanumeric) on a screen.

(2)   On certain graphics systems, the use of keys to control a crosshair on
       a screen for locating a point on a graphic.

Customer Information Control System (CICS)

IBM communications monitor software system with data base capabilities.

Cut and Fill

Process used in the design of roads and road placement based on allocating
the removal and placement of foundation materials.

Cut and Fill Analysis

Using MOSS or MAPS commands to alter, recombine, overlay, and make
calculations on mapped data in order to produce tables, graphs, and/or new
maps.

Cybernetics

The study and comparison of internal communications mechanisms in humans
(the nervous system) and complex computers.

Cyclic Redundancy Check (CRC)

A method for encoding the bits of a message into a group of usually 16-bits,
which is then appended to the message. All of the message bits are
incorporated into the single checking group. The encoding procedure typically

treats the message bit groups as a binary polynomial, divides it by a fixed
polynomial, and uses the remainder as the check group.

D-Size

An ANSI standard sheet size that is approximately 24" by 36". Many plotting devices are designed to produce D-sized drawings as their maximum output size.

Daisy Wheel

The print element of a daisy wheel printer, consisting of a flat disk with characters around the circumference. A daisy wheel can be either 10 or 12 pitch or proportionally spaced in a variety of types styles.

Data

(1)   A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by people or computers.

(2)   A general term used to denote any or all facts, numbers, letters and symbols, or facts that refer to or describe an object, idea, condition, situation, or other factors.

Data Administration

That function of the organization which oversees the management of data across all functions of the organization, and is responsible for central information planning and control.

Data Administrator

Person responsible in the organization who acts as the focal point for planning for, developing, managing and operating the office's corporate data. The BLM has several data administrators currently, each with slightly different roles:

Bureau Data Administrator (BDA). Responsible for overall policy, planning and budget for the data administration program in the BLM. Serves as the lead for the program.

Assistant Director's Data Administrator (ADDA). Responsible for the data administration program within the programs covered by an assistant directorate. There are five ADDAs; Lands and Renewable Resources, WO-200; Energy and Mineral Resources, WO-500 has two, one for solids and one for fluids; Support Services, WO-700; and Management Services, WO-800.

Service Center Data Administrator (SCDA). Responsible for the operational functions of data administration at the Service Center, particularly ensuring that the logical data modeling which is necessary for managing the BLM's data is performed and maintaining the current Data

Element Dictionary and the Data Dictionary for LIS State Office Data Administrators (SODA). Responsible for planning, control, and management of data that represents state level information resources and for the implementation of Bureauwide administration policy.

State Office Data Administrators (SODA). Responsible for planning control and management of data that represents state level information resources and for the implementation of Bureauwide data administration policy.

Data Archive

A means of storing all data in a data base and retrieving that data from another (external) data base, a disk, a tape, or the internal or "local" data base.

Data Bank

A comprehensive collection of libraries of data. For example, one line of an invoice would form an item, a complete invoice would form a record, a complete set of such records would form a file, the collection of inventory control files may form a library, and the libraries used by an organization would collectively form a data bank.

Data Base

(1)   A collection of information related by a common factor purpose.

(2)   A collection of related data. In the broadest sense, a data base is all of the information collected and stored by an organization. A data base in this sense is not restricted to any given storage or processing technique. Therefore, a data base may include computerized files, microfilm, paper documents, and virtually anything else that serves the purpose of collecting and disseminating information.

(3)   More specifically, a computerized file or, often, a large group of computerized files stored on magnetic disks, drums, punched cards, or other storage media. The data is collected and accessed by programs. Access is controlled by security features, and provision is made for preserving the integrity of the data bases against accidental or malicious contamination or destruction. A general objective of a true data base is to minimize the number of occurrences of the same data items within the data base, ideally to only one occurrence of each item of information. At the same time, this single data item should satisfy the needs of all users of the data base. Another objective of a data base is to isolate the data in the data base in such a way that when the programs which use the data are revised, or new programs are developed, the content and data structure of the data base do not have to be changed.

(4)   A collection of data fundamental to a system.

(5)   A collection of data fundamental to an enterprise.

Data Base Administration

The function directly responsible for developing, organizing, controlling, accessing, protecting, and documenting an organization's data base. The data base administration function supports the technical needs of data processing personnel.

Data Base Administrator

A technically oriented position in an organization responsible for data base administration. Examples of responsibilities of the data base administrator include the use of a data dictionary as a control and the selection of data base management system (DBMS) software. Other responsibilities have to do with system security and disaster recovery.

Data Base Creation

Process of bringing data into the electronic environment of a data base for later use.

Data Base Development

Process of determining what elements will be included in a data base and their internal relationships.

Data Base Management System (DBMS)

(1)   Software designed to access and structure a database.

(2)   Any software system designed for managing the creation of, storage of, updating of, and access to data stored in a data base.

Data Base Manager

The individual who is responsible for the data in a data base.

Data Capture

Series of operations required to encode data in a computer-readable digital form (e.g., digitizing).

Data Collection

A telecommunications application in which data from several locations is accumulated at one location (in a queue or on a file) before processing.

Data Communications Equipment (DCE or MODEM)

Designed primarily for use with a configuration of ADP equipment; includes front-end processors, terminals, sensors, and other similar devices.

Data Dictionary (DD)

(1)   Repository of information about the definition, structure, and usage of data. It does not contain the actual data.

(2)   A collection of the names of all data items used in a software system, together with relevant properties of those items, for example, length of data item, representation, etc.

(3)   A set of definitions of data flows, data elements, files, data bases, and processes referred to in a leveled data flow diagram set.

Data Display

Visible representation of data on a console screen in the form of a report, graph, or drawing.

Data Element (DE)

(1)   A specific item of information appearing in a set of data.

(2)   An aggregate of data (characters) that specifies an item of information at or near its basic level. An elementary item, e.g., (month) contains no subordinate item(s). A group item, e.g., (date) may consist of day, month, and year subcomponents and still be defined as a single Data Element. A Data Element may consist of a specific value which can be numeric, alphabetic, or a combination of both (alphanumeric). A tie to spatial attributes can also be made. An example would be HERD NAME or HERD LOCATION.

Data Element Dictionary (DED)

A repository for all definitive information about data elements, including their use, meanings, sources, characteristics, relationships, authorities, etc. The BLM's DED contains data as well as the descriptions of data, plus information on how the dictionary functions. Examples of data elements include state and county names and numbers (DE 0002), case types, and related authorities (DE 2961).

Data Encoding

To apply a code, frequently one consisting of binary numbers, to represent data. Sometimes used as data capture.

Data Entity

An object or objects of interest to the organization, usually tracked by an automated system.

Data Entry

Process of loading data in a computer-compatible format directly into a data base.

Data File

An aggregation of data sets for a specific use or an area on a storage device which contains related information and is treated as a single unit. A data file is made up of data records containing one or more elements.

Data Flow Diagram (DFD)

A graphic representation of a system showing data sources, data sinks, data links, storage, and processes performed on data as nodes, and logical flow of data as links between the nodes. Synonymous with data flow graph, data flow chart.

Data Input

The entering of data into a computer.

Data Integrity

The state that exists when computerized data is the same as that contained in the source documents and has not been exposed to accidental or malicious alteration or destruction.

Data Layer

Refers to data having similar characteristics that is contained in the same plane or overlay (e.g., roads, rivers). Usually information contained in a data layer is related and is designed to be used with other layers.

Data Manipulation

The performance of data processing chores such as sorting, input/output operations, and report generation.

Data Noise

Random or repetitive events that obscure, or interfere with, desired information.

Data Output

Data to be delivered from a device or program, usually after some processing; synonymous with output.

Data Processing System

A network of machine components capable of accepting information, processing it according to a plan, and producing the desired results.

Data Quality

Refers to the degree of excellence exhibited by data in relation to its portrayal of actual phenomena.

Data Reduction

Process of transforming masses of raw data into useful, ordered, or simplified intelligence.

Data Record

A collection of values taken by related data elements.

Data Security

The protection of data from accidental or malicious modification, destruction, or disclosure.

Data Service Unit (DSU)

The unit that interfaces a piece of data communications equipment with AT&T's Digital Data Service (DDS).

Data Set(s)

(1)   That smallest management grouping of data elements, by subject, which represents BLM's automated requirements.

(2)   An aggregate of information on a particular subject, containing data elements mostly specific to the data set.   If a Bureau program has identified several data sets which have mostly identical data elements (the same information is collected, used, and stored, then these data sets should probably be aggregated.—

(3)   A collection of data, such as an array or table of data items, a file, a program, or any other organized unit of data stored or processed by a computer system.

(4)   A device that permits the transmission of data over a communication channel. A data set does this by changing the format of the data from digital to analog or vice-versa. Synonymous with modem.

Data Standardization

The process of developing standards. The data standardization process concentrates on developing data coding standards for data. Part of that process involves entering the data elements developed for the data sets into a logical data model and thereby truthing or refining them.

Data Standards

Definitions of data elements within electronic data bases, usually described by a data element dictionary.

Data, Storage and Retrieval

The process of recording and extracting data from auxiliary storage devices by using a computer.

Data Structure

(1)   A formalized representation of the ordering and accessibility relationships among data items without regard to their actual storage configuration.

(2)   The organization (in computer memory) of data, particularly the reference linkages among data elements.

(3)   A method for coding a representation of space into a data base. A number of standard techniques are available for coding particular types of spatial data bases. These standard forms of storage are important for the more sophisticated types of spatial data bases such as areal coordinate data bases (both polygon and segment forms) and linear network data bases used to depict roadway systems. Many national and industrial standards are developing in the area of spatial data structures.

Data Structure Conversion

Procedures that convert from one type of spatial data structure to another. The most common examples of spatial data conversion procedures are those that convert from vector forms of data to raster or grid cell data structure.

Data Subset

An aggregate of information related to a smaller and finer breakdown of a data set. An example might be BIGHORN SHEEP. Leave blanks in this column of the Data Classification Structure rather than filling it in for the sake of completeness. Conversely, if in order to organize, you may use more than one

column for data subsets. Data subsets may have mostly identical data elements (the same information is collected, used and stored).

Data Systems Specifications

A type of solicitation for ADP wherein the vendor proposes to satisfy a workload that is stated in terms of the types, quantities, and sequences of jobs to be done.

Data Tablet

A flat tablet which will output the digital position of a pointer placed at any position on its surface.

Data Transformation

To change the structure of data without altering its meaning or value.

Data Topology

Refers to the relationship of specific items of data to other items of data.

Data Type

A class of data characterized by the members of the class and the operations that can be applied to them for example, integer, real, logical.

Data Value

The actual data or information contained in a data element.

Dataphone

Both a service make and a trademark of AT&T and the Bell System. As a service make it indicates the transmission of data over the telephone network. As a trademark it identifies the communication equipment furnished by the Bell System for data communication services.

Datum

(1)   A single item of data.

(2)   Any numerical or geometrical quantity or set of such quantities which may serve as a reference or base for other quantities. For a group of statistical references, the plural form is data - as, for example, geographic data for a list of latitudes and longitudes. Where the concept is geometrical and particular, rather than statistical and inclusive, the plural form is datums, as, for example, two geodetic datums have been used in the United States in recent years.

Datum, Horizontal

The position on the spheroid of reference assigned to the horizontal control (triangulation and traverse) of an area and defined by (1) the position (latitude and longitude) of one selected station in the area, and (2) the azimuth from the selected station on an adjoining station. The horizontal-control datum may extend over a continent or be limited to a small area. A datum for a small area is usually called a local datum and is given a proper name. The horizontal-control datum for the North American continent is known as the North American datum of 1927, the initial station of which is Meades Ranch, in Kansas, with the azimuth to station Waldo. All geodetic positions on the North American datum of 1927 depend on the position of Meades Ranch and the azimuth to Waldo.

DB-25

A 25-pin connector commonly used in the United States as the connector of choice for the RS-232-C serial interface standard.

Dbase III (+) Plus

A data base software package from Ashton-Tate.

DD 633 Form

A form used in cost type procurement to reveal cost and pricing data (the 633-4) or to obtain a waiver from such revelation by proving commerciality (the 633-7).

Debug

(1)   The process of locating, analyzing, and correcting suspected faults. Compare with testing.

(2)   To detect, locate, and remove mistakes from a routine (program) or malfunctions from a computer. Synonymous with troubleshoot.

Decimal

(1)   Pertaining to a characteristic or property involving a selection, choice, or condition in which there are ten possibilities.

(2)   Pertaining to the number representation system with a radix of ten.

Decision

The reduction to writing of the adjudicative process. A decision orders the disposition of a case in a certain way and contains a statement of the facts, laws, and reasoning which require that disposition.

Decision Table

(1)   A table of all contingencies that are to be considered in the description
       of a problem together, with the actions to be taken for each set of
       contingencies.

(2)   A presentation in either matrix or tabular form of a set of conditions and
       their corresponding actions.

DECnet

DEC's proprietary set of programs and protocols that allow two or more DEC
computers to form a network. Every DECnet consists of software modules that
perform functions according to defined rules.

Decollate

To separate forms or sheets of paper of a multipart form or paper stock into
individual documents.

Decompress

Process by which compressed data is expanded to its full file size.

Dedicated Line

A leased telephone line or powerline reserved for the exclusive use of one
customer, one terminal, or one specific use/application.

Deed

A document which transfers title to real property. In those instances where a
complicated metes and bounds description is the only description available, a
deed may be used by the Federal government to transfer fee-simple interest in
public lands. A patent would be issued under normal conditions where a
cadastral survey plat shows a description by legal subdivisions.

Deed in Fee

A deed conveying the title to land in fee simple with the usual covenants.

DEFII

The Honeywell Level-6 software which supports data entry activities that are
functionally equivalent to Forms Mode on the DPS-8 computer.

Default

A value automatically assigned, or an action automatically taken, unless otherwise specified; a value supplied by the computer when several alternatives are possible but none has been explicitly provided by the user.

Defense Acquisition Regulations (DAR)

DOD Procurement Regulations, now combined into the Federal Acquisition Regulations (FAR).

Definition File

A file defining a larger file, for example, a header file.

Definitions/Standards

The definition of a data element, and the rules by which the data are described. For example, "Month must be numeric and range between 01 and 12 inclusive. Day must be numeric and range from 01 to 30 inclusive for months that are 04, 06, 09, 11; and 01 to 31 inclusive when months are 01, 03, 05, 07, 08, 10, 12; and 01 to 28 inclusive when month is 02. In special years, called leap years, day will be 01-29 inclusive when month is 02. Year will be coded with two numeric digits that represent the last two digits of a generally written year, i.e., 1988 - 88 is the year. This is the only allowable data to be stored in the Date data element." This example does not address the spatial data standards, e.g., accuracy, collection, convention, etc.

Delegation of Procurement Authority (DPA)

GSA approval to procure.

DELETE

A command verb used under the Editor subsystem to delete a line, or lines, of data or a string of characters.

Delimiters

Special characters (/,etc.) used as special processing action indicators by the Time Sharing System.

Delineation

The legal description of the locations of points that mark the boundaries of a cadastral parcel.

Demonstration Project

The concentration of skills and hardware/software on a specifically defined problem with the goal of displaying solutions to the problem through automation.

Densification

An "infill" program to increase the number of units available in a given area, thereby reducing the distances between them and increasing their availability. In terms of land information systems, this normally refers to control points.

Densify

The act of adding points to a control point network to provide more control information in an area. A densified control network is required in areas where the volume of elements to be mapped is extremely high and the parcels are relatively small. A number of standard methods are available for densifying a control point network. The most common method is to create additional control points by running traverses from known control points to the new control point, thus generating a lower-order control point with its position dependent on the higher-order control station.

Density Pattern Mapping

A very common method for depicting intensity of a particular phenomenon across space through the use of gradual changes in shadings. Four common forms of this shading or density pattern mapping are simple choropleth maps, dot density maps, graduated figure maps, and grey scale shading algorithms.

Dependent Resurvey

A retracement and reestablishment of the lines of the original survey in their true and original positions according to the best available evidence of the positions of the original corners. It includes the restoration of lost corners in accordance with procedures described in the Manual of Surveying Instructions.

Derived Map

A map created as the result of analyzing, altering, or combining maps for a master data base.

Desirable Feature

A feature not essential in a delivered system but that would be useful to perform the desired workload.

Destrip

A radiometric correction applied to data. The corrections are necessary due to response differences between multiple detectors which are used to simultaneously scan a run in the same wavelength band.

Destructive Cursor

On a CRT display device, a cursor that erases any character through which it passes as it is advanced, backspaced, or otherwise moved. Contrast with nondestructive cursor.

Detailed Requirement Definition (DRD)

One phase of systems analysis devoted to detailed documentation of user requirements.

Determination and Findings (D&F)

FPR 1-3.301, DAR 3.300 and FAR 15.3 - A procurement document used to justify certain procurement actions such as the use of a Request For Proposal or a sole source procurement.

Development Methodology

A systematic approach to the creation of software that defines development phases and specifies the activities, products, verification procedures, and completion criteria for each phase.

Device Independence

A feature of a computer product, usually software, that allows simultaneous operation on a number of different peripheral computer devices. The term usually applies to computer graphics software and software interfaces with standard character-oriented terminals. The issue of device independence for character terminals centers on a standard set of instructions that performs basic screen formatting functions, such as direct cursor addressing, reverse video, underlining, and blinking. Each terminal uses a different set of commands to perform these basic screen functions, and a device-independent software product will have options available to work directly with a number of standard types of terminals.

Diagnostic Program

A program used to check equipment malfunctions and to pinpoint faulty components.

DIAL-UP

Service whereby a dial telephone can be used to initiate and effect a data communication link; generally equates to a switched (rotary) communication method that involves contention for access.

Dichotomous Data

Data composed of only one subject, which is either present or absent. In MOSS/MAPS a dichotomous map = type 6.

Difference

A relational algebraic function that compares information from two relations and writes the contents of one relation to a new relation based on whether a row with a common identifier was not found in the second relation. Difference or subtraction functions compare relation A to relation B using a key attribute field. The results of the function are a relation C that is structurally similar to A; however, it contains only those rows that did not match with a record in relation B.

Digital

(1)   Pertaining to the recording of quantities or other references using digits, which are discrete and do not form a continuum. Contrast with analog.
(2)   Noncontinuous signaling; see Analog.

Digital Base Map

A map in machine-readable form. A large number of methods exist for maintaining mapped information in a computer. The actual method employed by an organization is most often based on requirements of a particular software system or a bundled software and hardware system.

Digital Computer

A computer that operates by using numbers to express all the quantities and variables of a problem.

Digital Elevation Model (DEM)

A file with terrain elevations recorded for the intersection of a fine-grained grid and organized by quadrangle as the digital equivalent of the elevation data on a topographic base map. DEMs are used to produce automated slope, aspect, and three-dimensional plots.

Digital Line Graph (DLG)

(1)   Term used to describe a standard coordinate data structure used for the

transmission of machine-readable mapping data bases from the United States Geological Survey to the user community. This structure, which has several varied and documented forms, is currently used as an ad hoc standard for spatial data transmission by a number of federal, state, regional, and local public organizations.

(2)   A cartographic data file of line map information. DLG data files generated and distributed by the USGS contain lists of point coordinates describing boundaries, drainage lines, transportation routes, and other linear features that are organized by quadrangle as the digital equivalent of the linear hydrographic and cultural data on a topographic base map.

Digital Map

A map that uses numerical coordinates to reference the locations of its elements rather than the plotted locations of those elements in a graphic record such as a map sheet. (See cartographic data bases)

Digital Plotter

A computer device that draws or plots two- or three-dimensional maps, drawings, or diagrams.

Digital Remotely Sensed Data

Information that represents measurements made from a remote site and converted into a form that is legible to computer data bases. The most common form of digital remotely sensed data is an image on which radiation reflectance is measured for specific bands of radiation at discrete locations on the earth's surface. These discrete locations represent contiguous rectangles that when formed into a lattice, can be represented as an image of the surface.

Digital Terrain Data

One of eight specific classes of spatial data that attempts to represent elevation data adequately. The most common type of terrain data base configures three random elevation (or other Z- value) readings into a triangular cell.

Digital Terrain Model

(1)   A land surface represented in digital form by an elevation grid or lists of three-dimensional coordinates.

(2)   A model representing the terrain surface by a collection of digital data, mainly coordinates in three dimensions, and a digitally defined method to interpolate arbitrary terrain heights in between the stored values.

Digitization

(1)   Refers to the process of transferring coordinate information into machine-readable form. In computer cartographic and spatial information system applications, the term refers to the transfer of mapped data to machine-readable form. The most common form of digitization translates all line work on a map to strings of rectangular or geographical coordinates. Frequently, this process is done manually using electronic or mechanical digitizers, but techniques using raster and line scanners are also available. Once the coordinates are generated for all significant elements on a map, it is possible to convert the strings of coordinates to other spatial data structures (e.g., grid cell). Certain forms of digitization are used to capture map relations (next to, inside relations) and dynamics (flows). The method used to digitize a map depends entirely on the data to be captured and the structure required for the results by various application computer programs.

(2)   The process of converting an analog image or map into a digital format usable by a computer. Manual digitization involves the transformation of data by an operator with or without mechanical computer processors, while automatic digitization requires the use of an automatic device, e.g., a scanner, pattern recognition, or character recognition.

(3)   The conversion of a space relationship or measurement to numerical values in which mapping or cross-section data are converted to punch card form by a transducer and digitizer coupled to a recording system.

Digitize

(1)   To convert map data, using a digitizing tablet, to geographic coordinates that represent the theoretical mathematical position of a surveyed corner.

(2)   To convert an analog measurement of a physical variable into a numerical value, thereby expressing the quantity in digital form.

Digitizer

(1)   A device which converts point locations on a graphic image to plane (x,y) coordinates for computer input.

(2)   A device for the conversion of graphics (i.e., analog records) into digital data. The results may be recorded on some medium such as magnetic tape in a procedure called off-line digitizing, or processed directly by a computer in the case of on-line digitizing.

Digitizer Coordinates

The x,y coordinates of a point on the digitizer plane as transmitted to the computer. For a map, coordinates are converted to geographic coordinates by

computation.

Digitizer Menu Board

A method of allowing a graphics system to simulate the functions of a keyboard. Most graphic input devices return values translatable into Cartesian x and y coordinates relative to the lower left corner of the digitizer board. It is often desirable to use the digitizer table as a sophisticated keyboard. This may be done by reserving particular sections of the graphic input table (coordinate ranges) for special functions. Coordinates returned from the table that fall into the reserved areas are treated not as map features but as commands and characters. Most often these functions are controlled by software, but some sophisticated systems use hardware to recognize menu features. One common method used by turnkey cartographic and design systems is to provide two digitizer tables: a large one for graphic entry and a small board (or pad) for requesting commands.

Digitizer/Plotter

A device normally used both to digitize graphics and then to immediately check the data and record graphically what has already been digitized.

Direct Access

(1)   Retrieval or storage of data by a reference to its location on a volume, rather than relative to the previously retrieved or stored data.

(2)   Pertaining to the process of obtaining data from, or placing data into, storage where the time required for such access   independent of the location of the data most recently obtained or placed in storage.

(3)   Pertaining to a storage device in which the access time is effectively independent of the location of the data.

Direct Distance Dialing (DDD)

Placing long-distance telephone calls without operator assistance. DDD is normally used in data communications to mean the switched telephone toll network.

Directed Link

A link between two nodes that is coded with a direction. Directed link structures are often used in link-node networks to simulate linear systems such as roads, rivers, and electrical transmission networks.

Directory

(1)   The part of a disk that contains the names, types, and sizes of files

stored on the disk; a reference table indicating the storage locations in a file of various data records and used for gaining access to these records.

(2)   A list of users, features, functions, or applications contained within a system.

Discounted Cash Flow

An engineering cost method used to estimate the fair market value of mineral properties based on the time-value of income produced from the property. This method is useful only when a good deal of information is available about the deposits being evaluated. The application includes analysis software and data bases of reserves, extraction costs, production costs, transportation costs, and markets.

Discrete

Term used to describe a single element in a conceptual data base. Discrete records should be distinguished from information sets that represent groups of data. A discrete address represents a single, specific site or mailing address and is distinguished from ranged site addresses that represent groups of addresses.

Discrete Data

Non-interpolatable data composed of multiple subjects; each subject is clearly distinct from all other subjects on a map. In MOSS/MAPS discrete data = type 7.

Discrete Site Addresses

An address data base that identifies each unique address in an area on a single logical record.

Disk

A circular metal plate with magnetic material on both sides, continuously rotated for reading or writing by means of one or more read/write heads mounted on movable or fixed arms. A disk can be a fixed part of the disk drive or, in some instances, can be physically removed from the system.

Disk Drive

The housing unit for the disk. The disk drive contains a mechanism for controlling the movements of the read/write heads that store and retrieve information on a magnetic disk.

Disk File

A file located on a high-speed data storage device controlled by a computer.

Disk Operating System (DOS)

The programs which control the storage and reading of information on disks.

Diskette

A magnetic storage medium, usually smaller and more flexible than a hard disk. Also see Floppy Disk.

Display

Graphic presentation of the output data of any device or system.

Display (Hard copy)

A term used to describe a machine-printed document (paper or film copy of a map or graphic); also called a printout. Procedures that support the fast production of hard copies for maps are extremely useful during data base development periods. Hard copies can range from simple copies of graphics depicted on a computer screen to elaborate maps generated on sophisticated devices such as film recorders.

Display (Screen, soft copy)

An image of data presented on a cathode ray tube (CRT) computer terminal. The data may be either text or graphic.

Display (Storage) Tube Graphics

Storage tubes, also referred to as random scan displays, which work from a process that projects an electron beam across a screen. They are distinct from cathode ray tubes, both random refresh and raster refresh. The beam is controlled by a command set that assigns "strokes" (beam movements) from one addressable screen location to another. These strokes are stored as images that are maintained by a constant flow of electricity across the surface of the screen. The storage tube is a method for achieving high resolution images and is the one used on older Tektronix terminals (4010, 4050 series). The key difference between storage tube terminals and cathode ray tube (CRT) terminals is that storage tubes are vector-oriented devices, whereas CRTs demand the presentation of data in raster (picture element) form. Storage tubes must clear an image before a picture can be altered. Because of this, storage tubes are not convenient for applications in which a graphic image must be altered in part (editing a piece of a map).

Disposition

(1)   A transaction which leads to the transfer of public lands, and possibly the resources in these lands, from the Federal Government.

(2)   Relates to the retention and destruction of records. All records, regardless of media, should be part of a disposition schedule that directs the length of retention and location of records.

Dissolve

Refers to the process of removing shared common attributes by eliminating the shared boundaries when merging two or more polygons. A good example of line dissolving is the production of a Level II land use map from a Level III land use data base. Lines having the same land uses on both sides will not be drawn, the result being a Level II land use map.

Distance Analysis

Geographic computations based on Euclidean and/or non-Euclidean distances between items in a mapped area.

Distance Measure

Ability to measure the distance between selected locations or points; may include perimeter, path length, distance to nearest neighbor, search distances, etc.

Distributed Data Base

Data base having unique components in geographically dispersed locations that are linked through a telecommunications network.

Distributed Processing

(1)   A method to provide direct computer access to users located outside the data processing center, normally through a remote terminal communications network.

(2)   An arrangement of data processing resources that relies upon a series of smaller computers or a distributed data base under the control of individual users or small groups of users, rather than one large computer that is shared by all the users. The individual computers may be linked with one another and with a common data base. Contrast with centralized processing.

(3)   A general term, usually referring to the use of intelligent or programmable terminals at sites remote from a company's main computer facility. The difficulty of associating a precise definition with the term stems from the

source of the concept, i.e., the programmability of the terminal or workstation. Because such programmability can be used to provide component control, line control, data formatting, data validation, data manipulation and computation (processing), file creation, and file manipulation (also data processing), terminal programmability itself is insufficient to identify distributed processing. The trend is toward provision of some measure of local storage (e.g., diskette, cartridge disk, cassette, or cartridge tape) and capabilities for file manipulation as well as data validation and computation within the context of distributed processing remote workstations.

District Office (BLM)

An organization level that is one level below State Offices and one level above Resource Area Offices; a district generally includes two or more resource areas under its jurisdiction.

Document

(1) A medium and the data recorded on it for human use, for example, a report sheet, a book.

(2) By extension, any record that has permanence and that can be read by man or machine.

(3) A file containing data that has a single identifier. A document can be stored, accessed, revised, printed, and archived within the system.

(4) An instrument on which is recorded by means of letters, figures, marks, or symbols, information which may be relied upon as the basis, proof, or support of something; a deed, agreement, title paper, letter, or other written instrument used to prove a fact.

(5) To furnish written evidence. To provide with factual or substantial support for statements made or a hypothesis proposed; especially, to equip with exact references to authoritative supporting information.

Documentation

(1) A collection of documents on a given subject.

(2) The management of documents including identification, acquisition, processing, storing, and dissemination.

(3) The process of generating a document.

(4) The group of techniques (e.g., flowcharts, code listings, logic tables, functional specifications, and user guides) necessary to understand how particular computer programs and systems were designed (and how they

are to be used) and the reasons for changes that have been made in them.

(5)   All the materials needed for an orderly presentation, organization, and communication of specialized knowledge in order to maintain a complete record of reasons for changes in variables.

(6)   Written specifications of a program giving the program's goals, memory requirements, data structures, and algorithms; the description and format for data to be entered, and the description and format of the results.

Document

A class of text data that maintains a number of formatting or control characters that when interpreted by an appropriate output device create a formatted document. Word processing systems maintain document data by supplying special formatting characters for document control functions such as centering, tabbing, and formatting text for right justification. Documents can be sent through communication networks if the sending and receiving systems use common or logically equivalent sets of formatting and control characters.

Donation Lands

Lands granted from the public domain to an individual as a bounty, gift, or donation.

Doppler Count

A count of frequency difference resulting from Doppler shift that measures the change in distance between source and observer during a specified interval of time.

Doppler Effect

See Doppler Shift

Doppler Frequency

The observed (received) frequency in the Doppler shift.

Doppler Navigation

Navigation that obtains a craft's velocity from observations of Doppler Shift in a received signal. Two kinds of equipment are in use for this kind of navigation. The first consists of beacons emitting signals at known frequencies which are established at fixed points of known location; the moving vehicle measures the difference between the frequency of the signal it receives and that of the emitted signal. In the second kind, the craft itself carries the emitter. Here the radiation emitted is reflected from the ground or ocean bottom and

is recorded by a receiver on board the craft.

Doppler Shift

The difference between the frequency of radiation received at a point and the frequency of the radiation at its source, where observer and source are moving with respect to each other. If f_o and f_s are the received and emitted frequencies, respectively, then the Doppler shift, Delta f, is given by:

$$\text{Delta } f = f_o - f_s = -f_s (v/c)$$

where v is the speed of the observer with respect to the source, positive for the two moving apart, and c is the speed of the radiation. (This formula neglects relativistic effects.)

Dot Matrix Printer

See "Matrix Printer."

Down

Term used to describe a computer that is, for some reason, not ready for processing.

Down Time

That portion of time during which hardware or software is malfunctioning or not operating correctly due to mechanical or electronic failure or is under preventive maintenance, as opposed to available time, during which it is functional.

Downloading

Procedures that support the movement of a data set from one machine to another. The most common use of the word download describes the movement of data from a large host computer to a smaller, special purpose computer such as a desktop microcomputer or a computer dedicated to the production of automated maps.

Drawing File

A temporary collection of data copied from a data base to use in making a special drawing. The data base is not initially changed, although after the drawing file is modified, it may (or may not) be used to replace or add to the data base. The drawing file may be located in a separate computer or in a separate area of the central computer.

Drive Designation

A parameter preceding the file name and consisting of a single letter that tells the computer what disk drive the file is on.

Drop

A connection point for a terminal on a line.

Drum Plotter

A plotter which makes use of a rotating drum or cylinder to move a sheet of paper or film on which an image is created in the direction of one coordinate axis (e.g., the x axis), while the plotting head or beam moves only along the other coordinate direction (e.g., the y axis). Contrast with Flatbed Plotter.

Dual Image Map Encoding (DIME)

A geocoding system that describes both (1) the blocks used for enumeration and reporting of the U.S. Census and (2) the boundaries of these blocks (normally streets) as interrelated networks of points, lines, and areas.

Duplex

Pertains to a simultaneous two-way and independent transmission in two directions (sometimes referred to as "full duplex").

E-Size

An ANSI standard sheet size that is approximately 36" by 48". Many plotting devices are designed to produce these size drawings as their maximum output size.

Earth Coordinates

Term used to describe a coordinate system that is based on an explicit transformation of the earth's surface to an arbitrary Cartesian reference frame. A characteristic of earth coordinate systems that distinguishes them from arbitrary coordinate bases is that earth coordinates are mathematically related in some way to spherical (latitude and longitude) coordinates and mathematical routines exist to perform forward and inverse transformations of a spherical coordinate to the target earth coordinate system.

Easement

An interest or right in land owned by another that entitles its holder to a specific limited use, such as laying a sewer, putting up a power line or crossing over the property.

Echo Check

A method of checking the accuracy of data transmission in which the received data are returned to the sending station for comparison with the original data.

Echo Suppressor

A unit used to attenuate echos on long telephone connections. It suppresses the transmission path that is opposite in direction to the one being used. The time required for the echo suppressor to release is usually in the 15 to 130 millisecond range. This limits the speed with which data transmission can be turned around. Suppressors can be disabled and usually must be for full-duplex transmission.

Edge

An edge is a boundary between (or delineating) two areas.

Edge Enhancement

The use of analytical techniques to emphasize transition in imagery.

Edge Mapping

The comparison and graphic adjustment of features to obtain agreement along the edges of adjoining map sheets.

Edgefit

The process by which a data set on two adjacent maps is correctly aligned in the digitizing process.

Edit

(1)   Making changes to previously written information; one can edit documents, files, and programs, for example, to insert or delete characters such as page numbers or decimal points.

(2)   A mode of processing under the Text Editor subsystem in which data may be modified.

Editing

(1)   The detection and correction of errors as well as formatting, assembling, rearranging, and refining information (data).

(2)   Inserting, deleting, and changing attribute and geometric elements to correct and/or update model.

Editor

The subsystem under Time Sharing which allows the user to build a text file, append an existing file, or edit a text file by making additions, deletions, or corrections.

Efficiency

(1)   The amount of computing resources and code required by a program to perform a function.

(2)   The extent to which software performs its intended functions with a minimum consumption of computing resources.

Eight A (8A) Contract

Section 8A of the Small Business Act, which allows a socially and economically disadvantaged contractor who is certified by the Small Business Administration (SBA) to perform an agency's requirements.

Elapsed Time

Actual clock time taken to complete a command or operation, as opposed to CPU time.

Electronic Fund Transfer

A method of receiving and paying for goods and services in which funds are transferred from one account to another electronically under the control of one or more computer systems.

Electronic Industries Association (EIA)

A long established association made up of manufacturers of electronic devices and equipment. The EIA has been responsible for establishing a number of standards, including RS-232, a widely used communications interface standard.

Electronic Mail

Procedures that enable two users of a computer system to compose and send messages. Most electronic mail systems allow users to build correspondence using procedures similar to those in word processing systems and to send this correspondence to any other user in the system. Mail accumulates in a log for each user and is accessible to the user at any time. Most computer systems now support limited electronic mail services as a standard portion of the operating system. More elaborate electronic mail systems support the sending of messages between computer systems through networks.

Electrostatic Plotter

Plotting device which uses a variety of reproduction methods to produce hardcopy graphics in a fraction of the time taken by flatbed and drum plotting peripherals. The key to speedy electrostatic graphic display is the conversion of all plot line work from vector (stroke) form to raster form. Once the plotting surface has been structured into rows and columns or raster, entire rows of rasters are reproduced to hard copy material simultaneously. The quality of the plot is directly related to the number of addressable rasters per inch on the electrostatic plotting surface. Low resolution electrostatic plotters often produce graphics that have rough, jagged appearances. Other problems with electrostatic devices include paper feed and stretch anomalies. However, if quick turnaround time in map generation is important, electrostatic plotters can provide the fast, inexpensive graphics desired.

Elevation

The vertical distance from a datum, generally mean sea level, to a point or object on the earth's surface.

Ellipsoid of Revolution

A simple mathematical surface which best approximates the shape of the earth. It is the surface generated by an ellipse revolving about its minor axis, which can be considered to be the polar axis of the earth. See also Spheroid.

Eminent Domain

The right of governmental agencies to take private property for public use.

Emulation

(1)   The imitation of all or part of one computer system by another, primarily
       by hardware, so that the imitating computer system accepts the same
       data, executes the same programs, and achieves the same results as the
       imitated system.

(2)   A software program that will interpret or translate the source language of
       one computer system into operating instructions of another computer.

Encoding

Process of converting data (text or spatial) to a form that is usable by a
computer program.

Encoding Scheme

System used to make data usable by a particular computer program.

Encroachment

An unlawful and adverse intrusion within the boundary of a property, such as
cultivation of the soil, enclosure by fence, the construction of an improvement,
extension of a tunnel, an underground operation, or a comparable act.

Encumbrance

Any right or interest in land which makes it subject to a charge or liability.
Encumbrances include mortgages, judgment liens, attachments, leases, deed
restrictions, unpaid taxes, inchoate rights of dower, etc.

Enterprise Model

A high-level data model used to represent data usage throughout an
organization.

Entity(ies)

(1)   Something that exists independently, not relative to other things; a
       particular and discrete unit; an entirety. An entity can be a person, place,
       thing, event, or concept about which information is recorded. Entities are
       allied to Name/Entity in the DED as DE 2913.

(2)   Item(s) about which information is stored; may be tangible or intangible.

An entity is further defined by attributes.

Entity-Relationship

A form of system analysis that views a system as an abstract collection of entities and relationships; it does not pay attention to processes or inputs and outputs.

Entry

An application to acquire title to public lands.

Entry Point

(1)   A location in an executable computer code where one subprogram interfaces with another. Entry points are used to transfer the processing of a program from one location in processor memory to another. Most programs store the transfer address of the point where the program branched to an entry point so that the program can return to that location following the completion of the subprogram.

(2)   In modeling for drainage systems, entry points are locations where phenomena (water) enter a particular system feature. River systems, for instance, have primary entry points that allow surface water runoff estimated within a basin to be deposited in the primary drainage system. The location where water moves into a river or lake feature is referred to as an entry point. Junctures between primary drainage system features represent entry points (locations where water moves from one system feature to the next).

Envelope

A function which returns a rectangular box representing a value extreme for a particular feature. The input for this function is a line, area, feature, or classified surface; the output is be an area.

Environmental Assessment (EA)

A concise public document used by Federal agencies to determine whether to prepare an environment impact statement (EIS) or a finding of no significant impact (FONSI) for a proposed action. At the minimum, an EA briefly discusses the need for the proposal, alternatives to the proposal, environmental impacts of both the proposal and alternatives, and a listing of persons and agencies consulted.

Equipment Performance Specifications

A method of stating required system performance by specifying characteristics and speeds of system components.

Equivalency Table

A set of data that depicts relationships between geographical areas. The most common use of equivalency tables is to describe the smaller geographical areas that make up a larger equivalency area. For instance, each block that makes up a particular local voting precinct could be constructed into a data base, and this data base would represent an equivalency table. A common use of equivalency tables is in redistricting applications (school attendance zones and council districts).

Error

(1)   A discrepancy between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition.

(2)   Human action that results in software containing a fault. Examples include the omission or misinterpretation of user requirements in a software specification and the incorrect translation or omission of a requirement in the design specification.

(3)   Any change from the original. In data communications, error usually means detected error. In any error detection scheme there are some conditions that result in errors not being detectable.

Error Analysis

Analytical technique to determine the amount of deviation from a standard or specification.

Error Burst

An occurrence that causes a large number of consecutive transmitted bits to be affected. Error burst is significant because it is common and, while detectable, cannot be easily compensated for. Retransmission is the normal correction procedure.

Error Control

Detecting and correcting errors.

Ethernet

A single-cable cabling method for interconnecting computers and their peripherals; one IEEE standard for one type of local data network, developed by Xerox Corporation and supported by Intel Corp., Digital Equipment Corp., and Hewlett-Packard.

Excepting and Excluding

A common phrase used in title transfer documents.   When entering such exclusions, use the abbreviation EXCL for this phrase.

Exchange

(1)   A trading of public lands (surface and/or subsurface estates) that usually do not have high public value for lands in other ownership that do have value for public use, management, and enjoyment. The exchange may be for the benefit of other federal agencies as well as BLM.

(2)   The ability of a system to interchangeably transfer information without loss to (or from) another system.

Exchange Sale

The practice of taking government-owned equipment in trade for a new purchase.

Exclusion

A portion of a coordinate estimation for a polygon boundary that represents a cut-out within the area. The term, island, is used commonly to describe an exclusion.

Execute

The key that is pressed to run software for a menu.

Execution

(1)   The process of carrying out an instruction (or the instructions) of a computer program by a computer.

(2)   The actual utilization of the computer components by a computer program.

Expert System

(1)   A computer program that imitates well-defined expertise such as the diagnosing of diseases, or that contains the knowledge of experts and mimics their decisionmaking process.

(2)   A branch of artificial intelligence that translates human expertise into logical rules to reach logically verifiable conclusions.

Export

(1)   Process of transferring data or software from one system to another.

(2)   In MAPS, a command used to prepare a map for transfer to another geoprocessing system.

Extended Binary Coded Decimal Interchange Code (EBCDIC)

A code developed by IBM consisting of a set of 256 characters, each represented by eight bits.

Extension

Procedures available in a spatial data base management system that support increasing the coverage areas of a particular data base. The most common need for extension functions in local government data bases results from additional development in an area. The term, extension, is often used to describe the addition of areas to a geobased file management system. The GBF-DIME file program at the Census Bureau (the original geobased file) supports file extension functions.

Extract Information

To copy from a set of items all those which meet a specified criterion.

Facility Management

Procedure that allows a particular set of real-world objects to be managed in computer data bases. Facility management is a term most often employed with data base systems that aid in the design, development, and maintenance of utility infrastructure systems. Facility management procedures can range in complexity from simple inventories of the elements that make up the facility system to a full function system that employs system performance optimization, tracks the status of service calls, and interfaces textual information on facility elements with automated mapping data bases.

Fair Market Value

The value that the Bureau receives in payment for land, a commodity, or a service, usually established through an appraisal that is based on comparable free market sales.

False Origin

An arbitrary zero point to the south and west of a grid zone which is assigned to avoid negative coordinate values.

Farmington Demonstration Project (FDP)

A project carried out at the Farmington Resource Area, New Mexico, that was used by BLM to demonstrate the Bureau's existing (circa 1986) capabilities at developing a Land Information System. This demonstration was known as the "Redline" demonstration. After the completion of the Redline, a new system utilizing state-of-the-art hardware was tested; this new system was called the "Blueline." Following these demonstrations, Farmington became a Field Test Site for testing new parts of the Interim and Target Systems.

Fault

(1)   An accidental condition that causes a unit to fail to perform its required function.

(2)   A manifestation of an error in software. A fault may cause a failure. See also Bug.

Favored Customer Clause

A common practice in government procurement involving a clause that requires the certification that the seller has not sold the same product or service to other buyers for less.

Feature

(1)   A set of phenomena with common attributes and relationships. The

concept of feature encompasses both entity and object.

(2)   In a GIS, the smallest unit making up a map.

Feature Attribute

Also called a feature object. An element used to represent the non-positional aspects of an entity.

Feature Positional Information

Refers to information representing the location of an entity or object within a specified reference system.

Federal Acquisition Regulation (FAR)

Procurement regulations for all federal   executive agencies, effective April 1, 1984; replaces the Federal Procurement Regulations (FPR).

Federal Coal Management Program

A program requiring planning and coordination among Federal, State, Indian, and private organizations. Much of the data are public and must be available to all interested parties, while other data in mining plans and company reports are sensitive and must be held confidentially from competitors. A data base for this data must be comprehensive, timely, and available at different levels.

Federal Information Resources Management Regulations (FIRMR)

The new ADP procurement rules issued by GSA.

Federal Information Processing Standards (FIPS)

Official source within the Federal Government for information processing standards. FIPS was developed by the Institute for Computer Sciences and Technology at the National Bureau of Standards.

Federal Information Resources Management Regulations (FIRMR)

The new ADP procurement rules issued by GSA.

Federal Mineral Land Information System (FMLIS)

A system developed by USGS to allow land managers, policymakers, and others to rapidly retrieve, display, and analyze minerals information on Federal lands at regional, state, and national levels. This system utilizes digital land description/status data from ALMRS, along with mineral occurrence and potential data from the USGS Mineral Resources Data System and the Conterminous U.S. Mineral Appraisal Program (CSMAP).

Federal Procurement Regulations (FPR)

Procurement regulations for civilian agencies; replaced by FAR (Federal Acquisition Regulations), effective April 1, 1984.

Federal Programs

Activities of, or within the executive, judicial, and legislative branches of government.

Federal Supply Service (FSS)

A subordinate organizational element of the General Services Administration (GSA) whose purpose is to provide a uniform, low-cost source for many Federal government purchases ensuring efficiency and economy.

Fidelity

Degree to which a system accurately reproduces the data input into it.

Field

(1)   A sequence of one or more characters that is treated as a unit of data (whole); for example, an address could be one field. A field is the smallest unit of data that has meaning in describing information.)

(2)   In a record, a specified area for a particular category of data. For example, the reference point and figure identification are two fields in a graphical record, and Social Security Number and monthly salary are two fields in a payroll record.

Field Notes

The official written record of a survey, certified by the surveyor and approved by proper authority. See also Approved Survey.

Field Survey Procedures

Standard methods used by professional surveyors to obtain field measurements and document the results of field survey activities. Traditional field surveying uses equipment such as transits and other measurement devices. Modern electronic technology has created a new line of surveying tools, including a number of electronic distance-measuring devices.

File

A set of related records treated as a unit.

File Creation

The ability of a user to build a file via a terminal, or the building of such a file.

File Name

The expression by which a file is referenced.

File Structuring

Logical form of a file that results from applying a particular file organization and layout to a group of records.

Fill

(1)   A graphic primitive; synonymous with shade.

(2)   To place meaningless information, such as SPACE characters or "binary" zeros, into the unused portions of a fixed-length "block" of data in order to comply with length requirements; also called "padding".

Filtering

In image analysis, the removal of certain spectral or spatial frequencies to highlight features in the remaining image.

Findings and Determinations

A procurement document used to justify certain procurement actions such as a sole-source procurement.

Fire Management Planning

The planning required to protect resources and values from fire, and the use of fire to meet land management goals and objectives.

Firmware

(1)   Computer programs and data loaded in a class of memory that cannot be dynamically modified by the computer during processing.

(2)   Hardware that contains a computer program and data that cannot be changed in its user environment. The computer programs and data contained in firmware are clas-ified as software; the circuitry containing the computer program and data is classified as hardware.

(3)   Program instructions stored in a read-only storage.

(4)   An assembly composed of a hardware unit and a computer program

integrated to form a functional entity whose configuration cannot be altered during normal operation. The computer program is stored in the hardware unit as an integrated circuit with a fixed logic configuration that will satisfy a specific application or operational requirement, such as word processing.

(5) Permanent or semipermanent control coding at a micro-instruction level that implements a fixed application program, instruction set, I/O routine, operating routine, or other user-oriented function.

First Generation Computer

A computer utilizing vacuum tube components.

First Order

Refers to a control point having a recorded location that meets the highest standards of accuracy established by the National Geodetic Survey for its monuments that are in general public use. The standards require a relative distance accuracy of 1 part in 100,000 for the entire network.

First Order Control

Procedures used to establish the geodetic location of a point using a strict set of procedures. First order control procedures rely on absolute evidence as to the spherical coordinate position of a point. Most older geodetic surveys were performed based on astral measurements. More modern geodetic control procedures establish first order control using modern technology that includes geocentric satellites. See also Control, Geodetic.

Fixed Field

A field having a fixed, predetermined length. See also Field.

Fixed Price Contract

One of a family of contracts in which the vendor is committed to perform at a given price regardless of profit or loss; normally used for ADP.

Five-Year Plan

Five-year ADP and telecommunications procurement plan.

Flat File

A computer data base that consists of individual records that must be accessed sequentially from the first to the last record. The term flat file is most often used to describe the system default sequential file. Each record on a flat file usually retains characters that depict the end of individual records. A flat file

is most often described on the basis of characteristics depicted on printouts of the file, e.g., each record is a "line."

Flatbed Plotter

A plotter which generates a graphic image on a medium mounted on a flat surface. Contrast with drum plotter.

Flexibility

The ability to modify an operational program.

Floppy Disk

A circular, flexible, relatively inexpensive piece of magnetic material for the storage of digital data. See also Diskette.

Flowchart

(1) A graphical representation of the definition, analysis, or solution of a problem in which symbols are used to represent operations.

(2) A popular technique for using symbols to represent steps in a procedure, such as in a computer system or program. Special symbols are used to depict problems, data flows, procedures, equipment, methods, documents, machine instructions, etc.

GBF-DIME File

(1)　A standard geobased data base developed in the 1970s by the U.S. Census Bureau which integrates three types of spatial identifiers: coordinates (both spherical and rectangular), site address, and geographical area identification codes (geocodes). The DIME file (also known as GBF-DIME file) was designed to provide automated geocoding functions for Census Bureau data collected by site address. Original work on DIME files was performed by local government agencies. The general success of the DIME program was limited, however, and the majority of DIME files developed for urbanized areas in Florida have not been used or updated since their creation. The DIME file is currently being used by the Census Bureau as one of the basic source files in the development of the newer TIGER system.

(2)　A data structure that retains many relationships between types of spatial identifiers in a single file. The DIME (Dual Image Map Encoding) data structure assigns node numbers to positions on census maps. Pairs of nodes along linear features (roads, political boundaries, railroads, etc.) are then connected to form segments. Each segment is represented by a single record on the GBF-DIME file. The annotation for each segment includes a "from" node and a "to" node, the node order being dependent on the direction of increasing addresses. The segment is also assigned an address range and street or feature name whenever possible. Each side of a line segment represents a unique combination of census geographical zones. The geocodes associated with the zones are listed on the segment record in a left/right order. The left zone commonly refers to the zone that is to one's left when traveling along the segment in the "from"/"to" direction. Later versions of DIME files also include a rectangular (state plane) and geographical (latitude-longitude) coordinate for each node. These files may be used with address data bases for applications such as automated geocoding or computer-generated thematic mappings. The GBF file is a static version of a group of files called geobased files that integrates addresses, census geographical areas (and other zones), and coordinates in a common data base structure.

Generalize

To reduce detail in a model, e.g., resampling to larger spacing or reducing the points in a line.

Generate

To derive a desired outcome by the applying of one or more operations to a original model.

Geobased File

A data base that integrates three major classes of spatial identifiers: site

addresses, geographical area identification codes, and coordinates. The basic record in a geobased file consists of a single segment of roadway. The information retained for this segment includes the address ranges along the street (even and odd sides distinguished); the name, type, and orientation of the street; the geographical areas that lie on either side of the road segment (census tract, police patrol areas, council districts); and the coordinates that represent the centerline traverse of the roadway. Most geobased files also develop explicit relationships between street segments and the intersections where they meet. Modern data structures that maintain geobased files do so using a topological data structure.

Geobased File Management System

A set of procedures that is designed to create, edit, manage, and display geobased files. Most geobased file systems provide modules for address matching, assignment of geocodes to address records, assignment of coordinate estimates to address records, and statistical mapping procedures that generate choropleth displays for tabular information (related to geocodes) and incidence maps for discrete address locations. Most geobased file management systems support the storage of a significant amount of attribute data for each street segment, intersection, and discrete geographical area (e.g., council district data, precinct data).

Geocode

A spatial index code (i.e., coordinates) identifying unique points, lines, or areas, which may serve as a key to a record.

Geocoding

A function that supports the assignment of one or more spatial identifiers to a data record as a function of other spatial identifiers that are currently assigned to the record. The most common form of geocoding is to read a data base having site addresses and to convert the site addresses to geographical area identification codes (geocodes) based on the areas (geocodes) that the address falls within. This form of geocoding is useful in producing data bases that can summarize data bases keyed to site address by geographical areas of interest such as county council districts and precincts. A similar form of geocoding can assign geocodes to records based on coordinates assigned to data records. In recent years, geobased file management systems have also offered geocoding functions that convert site addresses to coordinates. These functions are useful in producing incidence maps based on address data.

Geodesy

A branch of applied mathematics concerned with determining the size and shape of the earth and the exact positions of points on the earth's surface. This science also studies variations in the magnetic fields of the earth.

Geodetic Control Network

See Control, National Control Survey Nets.

Geodetic Coordinates

The quantities of latitude and longitude which define the position of a point on the surface of the earth with respect to the reference spheroid. See also Geographic Coordinates.

Geodetic Reference Network

A series of permanent control points located by coordinates that have been determined with respect to the national system of geodetic control points. This includes all first order and second order control points by definition, plus other control points that also have been located accurately with respect to the national system.

Geodetic Survey

See Control Surveying, Geodetic.

Geodetic Survey Classification

See Control Survey Classification.

Geographic Coordinate

A mathematical representation of the location of a corner. A geographic coordinate may be surveyed, computed, or digitized. (See Survey, Compute, Digitize.)

Geographic Coordinates

A spherical coordinate system for defining the position of points on the earth.

Geographic Coordinate Data Base (GCDB)

A data base containing geographic coordinates (latitude and longitude) for corners of the Public Land Survey System (PLSS). The GCDB is designed to provide graphic portrayal and automated mapping of the land net and to allow registration of resource information (e.g., wildlife habitat, cultural resources, etc.) and land and mineral records to common geographic coordinate points.

Geographic Information Retrieval and Analysis System (GIRAS)

A system developed by the United States Geological Survey for capturing digital geographic information, particularly data created by the Land Use Data Analysis (LUDA) program. This program is designed to create Level II land use and

cover data for states entering into cooperative agreements with the USGS. Data related to this program were completed in 1976. Programs have been written to create, edit, manage, and display the data generated by the GIRAS program, a special set of these programs having been created for Florida. GIRAS uses a geographical data structure that maintains areal data in an arc/link/node structure with integrated attributes. The GIRAS data structure relates individual arcs/links to areas/polygons using a linked list array called a FAP file. Each area in coverage is described by a list of arc/link numbers that comprise the boundary of the area. Many residual data elements are also stored on the GIRAS file, including the area of polygons, perimeters of polygons, lengths of individual links, map element extreme values (arcs, polygons, and complete map), and attributes for polygons. Several graphic-oriented programs have been developed for use with GIRAS-formatted files, most graphic and analytical routines developed for GIRAS are for data sets converted to compact raster (grid cell) formats.

Geographic Information System (GIS)

(1)   A system of computer hardware, software, and procedures designed to support the capture, management, manipulation, analysis, modeling, and display of spatially referenced data for solving complex planning and management problems.

(2)   Programs designed to collect, store, manage, analyze, calculate, and display geographic, socioeconomic, meteorologic, and other types of spatial data. The key element distinguishing geographic information systems from other data management systems is the use in GIS of spatial data. In recent years, the term geographic information system has been used to describe systems that are primarily designed to manipulate natural resource types of data and perform analytical functions of interest to natural resource managers. In this delineation, geographic information systems are distinguished from other spatial data management systems such as drafting systems, map design systems, land information systems, geobased file management systems, image analysis systems, and terrain data management systems. Reports from a GIS usually consist of graphics generated on plotting devices. Retrievals from the system are often based on whether an item is near or inside a particular mapped feature. Many analytical features common to geographic information systems determine trends and patterns of one or more spatially distributed variables across a surface.

Geographic Transformation

A transformation of earth coordinates to centimeters, inches, or other appropriate units so they can be displayed on a map.

Geographical Area Identification Code (GEOCODE)

An attribute, most often numerical, that assigns a value to identify a particular

geographical location or area. The most common forms of geocoding typically assign data records to relatively large geographical zones such as states and counties. Commonly used geocodes are Census Bureau codes such as tracts, blocks, and Census County Divisions. Other common geocodes are Department of Transportation Traffic Analysis Zones (TAZ) and geographical area codes used in local governments such as police, fire, and utility service districts. A geocode is spatial only in the sense that it ties a set of data to a particular area. Some modern geoprocessing systems do retain one or more coordinates in a geocoded data record, these coordinates most often representing a centroid for the zone(s) described.

Geometric Correction

Transforming data to ground or image space in a known coordinate system.

Geometrical Transformation

Adjustments made in image data to change its geometrical character, usually to improve its geometrical consistency or cartographic utility.

Geopositioning

Techniques designed to estimate the earth position of an object. A number of modern technologies have evolved to simplify and reduce costs in determining earth position. The latest of these methods involves satellite-based geodetic survey using ground station/satellite services known as global positioning systems. Relative geopositioning systems using radar-based and other technologies are also available to position objects based on three or more objects of known position.

Geoprocessing

(1)   The processing of geographic data.

(2)   A general term used to describe a number of forms of spatial analysis. The term is most often used to refer to procedures associated with geobased file management systems such as address matching, automated geocoding, and coordinate estimation for addresses. The term has been expanded in recent years to include almost all analytical procedures using spatial information, including functions associated with infrastructure management systems and natural resource geographic information systems (polygon overlay and point-in-polygon assessments).

Georeference

Procedure that allows a file having an arbitrary coordinate base to be converted to a coordinate base that is tied to a mathematical earth coordinate system. Georeferencing is most often used to describe the conversion of an arbitrary image into a rectangular grid in a particular earth coordinate system.

Georeferencing occurs by assigning coordinate values in the earth coordinate system to specific locations in the data base of arbitrary coordinates. Georeferencing in image data bases involves the assignment of explicit earth coordinates to specific cell locations: row and column.

Georeferencing System

Planimetric coordinate system which identifies points on the surface of the earth. Systems include latitude-longitude, Universal Transverse Mercator, State plane coordinate and land survey systems, etc.

Geostationary Orbiting Earth Satellite (GOES)

A satellite system that returns low resolution digital images that are used in the production of the standard weather satellite photographs that are generally available for weather forecasting. GOES stations are set at static locations and monitor a particular portion of the earth on a continuous basis. The data returned from GOES are a single band of radiation for pixels that are approximately two kilometers square. A number of standard weather systems are now available to display and perform rudimentary analysis on GOES data.

Geounit

A discrete geographical area that has been assigned a code for use in the collection of information related to the area. A code assigned to a geounit is called a geocode. Examples of geounits common to local government agencies are voting precincts, police patrol districts, and county council districts.

Global Bounding

Putting limits on what a system can do either in terms of time or volume of workload processed.

Global Positioning System (GPS)

A procedure that employs a number of advanced technologies to support the estimate of very accurate earth locations. The most common form of a global positioning system is one that estimates the placement of a device by using data from three or more geocentric satellites. The use of global positioning systems will radically reduce the cost of estimating accurate earth coordinates.

Global Resample

The sampling of digital raster data in order to register (geometricall; align) one set of data with another. The second set of data is often a map. Global refers to a registration of data over a large area, e.g., over an entire handset scan.

Good Title

Title to land that is free from litigation, palpable defects, and grave doubts, comprising both legal and equitable titles.

Government Technical Representative (GTR)

An individual who provides technical instruction and oversight under designated contracts. Also referred to as the Contracting Officer's Technical Representative (COTR) in some agencies.

Gradient

Rate of rise or fall of a quantity against horizontal distance; expressed as a ratio, decimal, fraction, or percentage, or as the tangent of the angle of inclination.

Graduated Circle Map

A type of statistical cartography using proportional circles at specific locations to represent the quantity or intensity of a phenomenon. The most common graduated circle method makes the area of the circle proportional to the quantity of the phenomenon it represents. Most computer programs designed to produce graduated circle maps solve overlapping circle problems by plotting smaller circles above larger ones. Related to graduated circle maps are graduated figure maps (see definition below), which use a particular shape of varying sizes to represent the quantity of the phenomenon. Different figures can be used to depict more than a single phenomenon on one map.

Graduated Figure Map

A class of thematic maps that use proportional figures at particular locations to represent the quantity or intensity of a phenomenon at each site. The most common form of graduated figure map is one that presents circles proportional to a value that it represents. Most graduated figure thematic mapping programs solve problems of overlapping figures by plotting smaller figures above larger ones. Most packages are standard groups of shapes that can be plotted in proportion, but the programs also provide options to allow user-defined arbitrary figures for special thematic maps. Multivariate displays can easily be generated with graduated figure mapping packages by presenting more than one type of figure or varying the color, size, and shape of a figure to depict multiple variables in a single display (height and width of the figure controlled by different variables).

Grant

A gift of public lands given either as a quantity of land (acreage) or as a specifically located parcel.

Graph

A model consisting of a finite set of nodes having connections called edges or arcs.

Graphic Entities

Entities which are graphically portrayed as geometric shapes or symbols on the source document.

Graphic Orientation

Either default or user-specified orientation of geographic data.

Graphics

(1)   The symbols, forms, colors, character sets, and commands used to organize screen and text images.

(2)   Pictures, diagrams, mathematical drawings, or charts depicting numeric or spatial data. Computer graphics reduce data to digital form for storage processing and display. Varied types of graphic devices can be supported by a computer system, both hard copy devices (pen plotters, electrostatic plotters, line printers) and terminals (cathode ray tubes, plasma screens).

Graphics Kernal System (GKS)

Set of standard interface definitions for software programs that support graphic devices such as plotters, terminals, etc. An advantage that GKS has is that it allows different systems to communicate with any support devices without developing specialized code.

Graphics Terminal

A computer terminal designed to display two- or three-dimensional maps, drawings, or diagrams; usually more expensive than standard CRT computer terminals.

Grazing Authorization and Billing System (GABS)

A computer system designed to process grazing permits and leases, grazing applications, and grazing bills, and to produce statistical reports.

Grazing Permit or Lease

Any document authorizing use of BLM-administered public lands or lands in National Forests in the eleven contiguous western States for the purpose of grazing domestic livestock.

Grid

A network composed of two sets of lines, each set drawn according to a definite pattern and intersecting the other in a specific geometric arrangement. The most common form of grid consists of uniformly spaced parallel lines intersecting at right angles. The term is frequently used to designate a plane-rectangular coordinate system superimposed on a map projection, in which case it generally carries the name of the projection; that is, Lambert grid, Transverse Mercator grid, Universal transverse Mercator grid. (See Cell).

Grid Addressing System

A site address system where the parcel or structure numbers assigned to an address are based on the relative location within an actual or theoretical grid laid over an area. The most common form of grid addressing systems use an arbitrary basis; however, more recent addressing systems have used grids based on original survey areas (sections) to preserve a relationship between parcel identifiers and site addresses.

Grid Base

An orientation basis for a particular portion of the earth's surface. A grid base is often used to refer to the location of a theoretical grid of a discrete section of the earth. Most grid bases have mathematical properties that support the estimation of grid coordinates from standard spherical earth coordinates. Most grids developed for coordinate systems are rectangular, thus allowing the employment of standard analytical geometric techniques on coordinates generated using the grid. A number of alternative grid bases are possible, however, including polar telescoping grids and logarithmic grids. Frequently used examples of grid bases in spatial data bases are the State Plane Coordinate systems of the National Ocean Service and the Universal Transverse Mercator system developed by the U.S. Army.

Grid Cell

(1)   A network of uniformly spaced horizontal and perpendicular vertical lines which enclose an area with an associated value assigned.

(2)   One square unit in a rectangular coordinate grid; a geographical unit which is easy to reference and thus may be convenient for coding, manipulating, or summarizing land data.

Grid Cell Data Bases

Geographic data bases where each discrete location of the earth is described based on a lattice of locations overlaid on an area. Most common grid cell data bases use a rectangular lattice of locations; however, other mathematically based grid systems also employ hexagonal and triangular grids. A number of

grid cell data bases developed for Public Land Survey states are based on some subset of a section (aliquot part of a section). The state geographic information system in Minnesota, for instance, retains information in 40-acre (quarter/quarter section) cells. A single unit in a grid cell data base is referred to as a cell or a raster. A number of varied methods are used for storing grid cell data bases, including image methods (each cell represented by a single number or group of numbers) within a row (or column) of numbers. Digital remotely sensed information such as Landsat is an example of image grid cell data storage. Another method of coding grid cell data bases is run-length. In this method, contiguous sets of equivalent cells along a row or down a column are coded into a single record to remove some redundancy in storage.

Grid Coordinates

Euclidean coordinate system in which points are described by perpendicular distances from an arbitrary origin, usually on an (x,y) axis.

Gridded Data Base

Map data stored in numerical matrices.

Ground Truth

Information acquired by field study for calibration or verification of geographical data.

Ground Truthing

Procedures whereby individuals verify geographical data interpreted from remotely sensed products (aerial photography, image data) by visiting specific sites to identify the actual phenomena occurring at the location. A measure of accuracy can be determined for a data base by performing ground truthing on a series of arbitrary points classified in the data base and calculating the success rate for proper classification.

Group

A function that generates a feature reference based on a list of other data base elements. It accepts a set of topological elements and features and generates a feature containing all the specified elements. The user should have the option of permanently storing the feature under a particular name or temporarily generating the group simply to perform an analytical function.

Group Value Assignment:

Grid cell attribute coding schemes that assign more than one attribute for a specific theme to each grid cell. Examples of group value assignments are grid cell data bases that contain two attributes for land cover, one for the predominant land cover: the other for the second most common. Most group

value assignment schemes also include additional variables that indicate the percentage of occurrence for each value in the group.

GSA Tripartite

An arrangement in which BLM contracts with GSA, which in turn contracts with a third party. BLM provides and administers the Task Orders; GSA provides the contractor.

Hard Copy

Printed paper or film copy of machine output in a visually readable form such as printed reports, listings, graphs, drawings, maps, summaries, etc.

Hardware

(1) Physical equipment or devices used in data processing, as opposed to computer programs, procedures, rules, and associated documentation. Contrast with Software.

(2) Physical components of a central processing unit and its peripheral equipment, as opposed to the computer program or method of use. Hardware consists of mechanical, magnetic, electrical, or electronic devices.

Header

(1) Control information at the beginning of a message.

(2) In MOSS and MAPS, information about maps, including description, study area, date, source, type, subjects, and minimum bounding rectangle.

(3) In Case Recordation, the information found in Record 1, including serial number, etc., that identifies each case.

Hectare

An area of 10,000 square meters, or one-hundredth of a square kilometer, or 2.471 acres. A gridded data base with grid cells that are 100 meters square may be said to use a "hectare grid."

Herd Area

A geographic area identified as being used by a herd of wild horses or burros as its habitat in 1971.

Herd, Horse

One or more stallions and his mares.

Help Key

A specialized key on the keyboard of the Wang Professional Computer that, in most applications, evokes a screen of information about the current procedure.

HELPME

The password assigned to training files.

Hertz

A unit of frequency equal to one cycle per second; generally abbreviated as Hz.

Hexadecimal

A number system with 16 members (i.e., a base of 16) represented by 0 through 9 and A through F. Used to easily identify the 16 possible bit patterns of a half-byte; two hex digits represent one byte.

Hexagonal Grid

A regular grid in which each grid element represents a symmetric hexagon and offsets each row of cells by one half of the cells width. Some modern natural resource-oriented geographic information systems maintain data in a hexagonal grid. Hexagonal grids have a major advantage over rectangular grids in simulating surface representations. These grids provide a less ambiguous interpretation of slope and aspect, and provide a more natural representation of ridges and primary drainage features.

Hiatus

An area between two surveys of record, which by the record are described as having one or more common boundary lines with no omission. The title to the area within the hiatus, except possibly for adverse possession, would appear to remain where it was before the surveys were placed on record. Judicial opinion and court decree may be required in order to clear the record.

Hidden Line Removal

The process of not plotting a line that would be subsequently invisible when producing a 3-dimensional view plot.

High-Level Data Link Control (HDLC)

Bit-oriented protocol being developed by ISO (International Standards Organization).

Higher-Order Language (HOL)

A programming language that (1) usually includes features such as nested expressions, user-defined data types, and parameter passing not normally found in lower order languages; (2) does not reflect the structure of any one given computer or class of computers; and (3) can be used to write machine-independent source programs. A single higher-order language statement may

represent multiple machine operations.

Histogram

A representation of a frequency distribution using rectangles whose widths represent class intervals and whose areas are proportional to the corresponding frequencies.

Historical Index (HI)

One of a class of official Bureau land status records which is specifically a chronological summary of all actions which affect, have affected, or will affect title to, disposition of, or use status of, lands and resources within an individual township.

Historical Parcel

A function of a parcel information system that supports the retrieval of all significant land records related to a single parcel of land in a time series manner. Parcel information systems featuring historical tracking allow users to obtain a full listing of all significant land transactions executed on a particular parcel. Historical tracking systems are extremely useful in functions such as title searches and parcel hiatus line conflict resolution. Most historical tracking systems are based on a relational parcel identification system that provides methods for identifying the children parcels related to one parent parcel or a group of parent parcels. Many modern spatial information systems use spatial indices made up of coordinates to provide historical tracking functions in land information systems.

Hits

In MOSS, the number of items on a map.

Holder

Any State or local governmental entity, individual, partnership, corporation, association, or other business entity receiving or using a right-of-way under Title V of the Federal Land Policy and Management Act.

Hollerith Code

Twelve-level punched card code.

Home Loop

Operations using input and output units associated with a terminal when the terminal is connected to the line.

Horizontal Control

See Control, Horizontal.

Host Computer

(1)   The primary or controlling computer in a multiple-computer operation.

(2)   A computer used to prepare programs for use on another computer or on another data processing system; for example, a computer used to compile, link, edit, or test programs to be used on another system.

Houston Automatic Spooling Processor (HASP)

A technique that is widely used on larger model IBM computers to control input and output involving remote devices. The HASP method utilizes mass storage (normally disk units) to temporarily store data being sent between the CPU and its peripheral devices.

Idle Time

The time when a computer is available for use but not actually in use.

IEEE 802.3

A baseband local area network standard developed as a refinement to the original Ethernet specifications. It is essentially an upward-compatible version of Ethernet, with expanded capabilities.

IEEE 802.4

A broadband, token passing network standard.

IEEE 802.5

A broadband, token ring networking standard.

IEEE 1003.1

(POSIX) A definition for a portable operating system, based upon AT&T's Unix.

Image

The representation of a scene as recorded by a remote sensing system. Although image is a general term, it is commonly restricted to representation acquired by nonphotographic methods.

Image Analysis System

A class of spatial information management system that is designed to process and classify digital remotely sensed data. The source of this digital data can range from information that is captured using video cameras that support analog-to-digital conversion routines, to data that was captured from imagery sensed from satellites. A number of turnkey image analysis systems have been developed in the private sector for computer processing environments ranging from small microcomputers to fifth-generation supercomputers. Most image analysis systems support software that allows images to be viewed, statistical assessments of the values in an image to be completed, and procedures to be run on the data to classify the image based on a specific set of criteria. Analysis encompasses all the various operations that can be applied to photographic or image data. These include, but are not limited to, image compression, image restoration, image enhancement, preprocessing, quantization, spatial filtering, and other image pattern recognition techniques.

Image Data

A type of grid cell spatial data that stores information for contiguous cells in a single logical data record. Image data sets store values for each cell in a

lattice of cells, but compacts the storage of this information by placing the values for a cell at implicit locations in the logical record. The best examples of image data bases are those used to maintain digital remotely sensed information. In this variety of information, reflectance intensities for one or more bands of radiation are maintained as individual values in a single logical record. These values are often stored in binary integer form, most often in a single byte of information (for those measurements with 256 or less levels of intensity). The best example of remotely sensed image data is the information generated by the LANDSAT earth resources satellite. Another common example of image data bases is the meteorological satellite data such as that produced by GOES. Many grid cell geographic information systems maintain working data sets in image form because this structure simulates the storage of a grid cell data base in a multidimensional array. The logical organization of image data sets is across rows or down columns in data sets.

Image Enhancement

Any one of a group of operations that improve the detectability of targets or categories. These operations include, but are not limited to, contrast improvement, edge enhancement, spatial filtering, noise suppression, image smoothing, and image sharpening.

Image Processing

Encompasses all the various operations which can be applied to photographic or image format data. These include, but are not limited to, image compression, image restoration, image enhancement, image rectification, preprocessing, quantization, spatial filtering, and other image pattern recognition techniques.

Impact

The effect of one operation on an entire system.

Impact Assessment

Procedures that determine the increase or decrease of a particular phenomenon based on changes in a number of other variables. The majority of spatial analytical functions currently support procedures that can be used to determine impact assessment on a modeled system. For instance, linear network data management systems that maintain utility facility networks (electric, water, etc.) provide procedures that depict the demand on an overall linear network based on specific changes made both in the physical structure of the network and in the demand schedule from customers. This type of system allows local government personnel to assess the impacts on a network, based on changes such as new development. Impact assessment systems are used for diverse functions such as (1) decision support for the approval or rejection of proposed land activities and (2) quantification of overall system impact of development for use in the determination of impact fees.

Impedance Computation

Calculation and summary of those factors opposing direct flow or efficiency.

Implementation

(1) A realization of an abstraction in more concrete terms; in particular, in terms of hardware, software, or both.

(2) A machine-executable form of a program, or a form of a program that can be translated automatically to machine executable form.

(3) The process of translating a design into code and debugging the code.

Implementation Phase

The period of time in the software life cycle during which a software product is created from design documentation and debugged. See also Test Phase.

Implementation Requirement

Any requirement that impacts or constrains the implementation of a software design; for example, design descriptions, software development standards, programming language requirements, and software quality assurance standards.

Import

(1) Process of bringing data or software from another system into a system.

(2) In the BLM Map Overlay and Statistical System (MOSS), to convert a map cell file from outside the GIS system to a map cell file having an acceptable cell format, using the IMPORT command.

In-House

Responsibility for products residing principally with the government, as opposed to contractor responsibility.

In-Line Processing

The processing of transactions as they occur, with no preliminary editing or sorting before they enter the system.

Incidence Mapping

Procedures that generate a map by placing a symbol (most generally a single dot) for each occurrence of a phenomenon across the surface of a map. This class of map can be used in local government as a general method for

depicting the locations of service requests. The best examples of incidence maps are those that depict the locations of specific classes of crimes in a city. In this case, the crime-incidence map simulates standard pin mapping techniques used traditionally by law enforcement agencies.

Index

(1)   An ordered list of the contents of a file or a document, together with keys or references for locating the individual entries.

(2)   A special stored file in which each entry consists of a data value and a pointer. The data value is a value for some field of the indexed file, and the pointer identifies a record of a file that has the value for that field.

Index Map

(1)   A map showing the location of collections of data, which may be other maps, photos, statistical tables, or descriptions.

(2)   A small-scale map showing the locations of, or other information about, a survey or a project.

Information Category

Six major groupings for categorizing data which are used in meeting the Bureau's mission requirements. These groupings reflect our mission and activities and give us a logical pattern or structure for thinking about data.

Information Management System (IMS)

IBM data-base management software system that also provides communications monitor functions.

Information Resource Management (IRM)

An umbrella term used for all aspects of manual and automated data. Use of the term emphasizes the importance of managing the Bureau's huge databases as a valuable, agencywide information resource.

Information Resource Management Advisory Committee (IRMAC)

A committee made up of representatives from each state and the Service Center that provides technical advice on automation to BLM's Field Committee and the Bureau Management Team.

Information Resources

Information and the personnel, monetary, and technological elements involved in its creation, collection, storage, and dissemination.

Version 2.0

Information Retrieval

Methods and procedures used for storing and retrieving specific data and/or references based on the information content of documents.

Information Subcategory

An optional entry used only if an Information Category needs breaking into logical and more manageable segments for organizing the development of Data Sets. Under Resource Values, logical sections follow the structure of the resource. An example might be TERRESTRIAL as a subcategory of ANIMALS. In Resource Management categories, the logical sections generally are meant to follow the structure of the program. Leave blanks in the structure rather than working to manufacture something in this column.

Infrared Imagery

A recording in graphic form of radiated electromagnetic energy in the heat (infrared) range of the spectrum.

Infrastructure

(1)   BLM's support structure for providing services and other support for all BLM programs.

(2)   BLM's IRM support structure for providing services and other support for the Bureau's automated programs.

Input

(1)   Any information supplied to a computer (e.g., through keyboard entry or a disk being read).

(2)   Information or data transferred, or to be transferred, from an external storage medium into the internal storage of the computer.

Input Device

Computer components designed for transferring data into the computer, e.g., terminal keyboards, card readers, and tape or disk drives.

Input/Output

(1)   Pertaining to either input or output, or both.

(2)   A general term for the equipment used to communicate with a computer, commonly called I/O.

(3)   Data involved in communication with a computer.

(4)   Media carrying data for input/output.

Input/Output Channel (I/O)

In an automatic data processing system, a functional unit controlled by the central processing unit that handles the transfer of data between main storage and peripheral equipment.

Input/Output Device

A machine for putting information into and/or getting information out of a computer, e.g., a terminal or printer, or a machine used for storing information as well, similar to a disk drive (often called a computer peripheral).

Input/Output Matrix

A statistical procedure designed to simulate the interaction of entities in a particular social or physical system. Most commonly applied to economic systems, the I/O matrix is often a square lattice of numbers representing a quantity that passes between participants in the system. The entries along the rows usually represent units of consumption while the columns represent units of production. The system can then be described as a square interaction matrix with each cell depicting the relative movement from one sector to another. Once these interaction relationships have been quantified within the matrix, algebraic techniques can be used to manipulate the array. Matrix inversion and vector multiplication can produce extremely useful predictions of how activity in one sector of a system will affect activities in other sectors. A very common use of an interaction matrix is to invert it, calculate a theoretical demand vector, and determine the product of this vector and the inverse matrix to estimate the effect of demand schedules on various sectors of the modeled system.

Input Process

(1)   The process of receiving data.

(2)   The process of transmitting data from peripheral equipment or external storage to internal storage.

(3)   Synonymous with Input.

Inquiry

(1)   A request for information from storage; for example, a request for the number of available airline seats or a machine statement to initiate a search of library documents.

(2) A technique whereby the interrogation of the contents of a computer's storage may be initiated at a remote terminal keyboard.

Inquiry and Transaction Processing

A type of teleprocessing application in which inquiries and records of transactions received from a number of terminals are used to interrogate or update one or more master files maintained by the central system.

Inreach

An organization's efforts to pass information to its own employees to keep them informed.

INSERT

A command verb which tells Text Editor that the user wishes to place a line of data between two existing lines.

Inspection

(1) A formal evaluation technique in which software requirements, design, or code are examined in detail by a person or group other than the author to detect faults, violations of development standards, and other problems. Contrast with Walk-Through.

(2) A phase of quality control that by means of examination, observation, or measurement determines the conformance of materials, supplies, components, parts, appurtenances, systems, processes, or structures to predetermined quality requirements.

Instruction

A statement that specifies an operation and the values or locations of its operands.

Integration

The process of combining software elements, hardware elements, or both into an overall system.

Integration Test

(1) A systematic technique for assembling software while at the same time conducting tests to uncover errors associated with interfacing. Typical approaches are either "top-down" or "bottom-up."

(2) An orderly progression of tests in which software elements, hardware elements, or both are combined and tested until the entire system has

been integrated.

Integrity

The extent to which unauthorized access to, or modification of, software or data can be controlled in a computer system.

Intelligence Map

A series of attributes assigned to the elements of a map that allows the user to do more with the mapping data base than simply reproduce displays. A large number of methods are available for adding intelligence to a mapping data base. The simplest form of map intelligence is to assign a series of descriptive attributes to each individual element in an automated mapping data base. Most modern CAD/CAM systems support facilities that allow this graphics/data relationship to be developed. More significant, however, are attributes on graphic elements that describe their relationships with other graphic elements. Examples of this form of map intelligence include linkages between lines of a map that describe how the lines must be chained consecutively to form closed areas or polygons. More elaborate examples of map data base intelligence can be found in linear network data models and topological data structures.

Intelligent Terminal

A terminal that includes a programmable processor and permits some level of processing (rather than just Emulation).

Inter-Record Gap

An interval of space or time deliberately left between recorded portions of data or records. Such spacing is used to prevent errors through loss of data or overwriting and permits tape stop-start operations.

Interactive

(1)   Mode of communication between user and computer that allows users or other systems to directly interact with the information system to input and/or manipulate and retrieve information in a real-time framework.

(2)   Refers to a system allowing two-way electronic communication between the user and the computer.

(3)   Pertains to a system in which each user entry causes a response from the system.

Interactive Computing

Using a computer so that the user is in control and may enter data or make other demands on the system, which responds by immediately processing user

requests and returning appropriate replies.

Interactive Processing

(1)   Processing in which the computer executes instructions as they are entered from the keyboard.

(2)   A type of computer or data processing in which the user interacts with the computer during processing to alter the flow of control in a program to achieve optimum results. Compare with Batch Processing.

Interface

(1)   The connection point where one device "ends" and a second "begins;" also, a common boundary between ADP systems or parts of a single system.

(2)   The junction between components of a data processing system. The junction should be generalized to allow any attribute, combination of attributes or derived attributes to be subsequently displayed, related, sorted, retrieved, or manipulated.

(3)   A piece of hardware/software used to connect two devices that cannot be directly connected.

(4)   To interact or communicate with another system component.

Interface Requirement

A requirement that specifies a hardware, software, or data base element with which a system or system component must interface, or that sets forth constraints on formats, timing, or other factors caused by such an interface.

Interface Specification

A specification that sets forth the interface requirements for a system or system component.

Interface Test

A test conducted to ensure that program or system components pass information or control correctly to one another.

Interim Configuration

The set of software, hardware, and control used by BLM prior to Target System implementation.

Interim Land Information System (ILIS)

The management, use, and growth of resource systems, with the goal of efficient transition during the period prior to the implementation of the Target System.

Interim Products

In GIS, softcopy and/or hardcopy output products used to check accuracy, draw preliminary conclusions, and further refine a model.

Interim System

A computer system that is set up on a temporary basis, with the idea that it will be permanently replaced later.

Interior Area

Space enclosed by a polygon.

Interior Board of Land Appeals (IBLA)

A board exercising jurisdiction over cases involving appeals from decisions rendered by Departmental officials relating to (1) the use and disposition of public lands and their resources and (2) the use and disposition of mineral resources in certain acquired lands and in the submerged lands of the Outer Continental Shelf. Persons adversely affected by a decision of a BLM officer or examiner have a right to appeal to the board. The Board is located in the Office of Hearings and Appeals within the Office of the Secretary of the Department of the Interior. Decisions of the Board on all appeals are final for the Department.

Internal Data Structure

Organization within a system of data, especially the reference linkages among data elements.

International Organization for Standardization (ISO)

International body which promotes standardization through agreements with national standardization authorities.

Interoperability

The ability of two or more systems to exchange information and to mutually use the information that has been exchanged. Compare with Compatibility.

Interpolation

Determination of an intermediate value between fixed or tabulated values from some known or assumed rate or system of change.

Interpret

To translate and execute each source language statement of a computer program before translating and executing the next statement. Contrast with Assemble, Compile.

Interpreter

(1)   Software, hardware, or firmware used to interpret computer programs. Contrast with Compiler, Assembler.

(2)   A computer program used to interpret.

Interrupt

(1)   To stop a process in such a way that it can be resumed.

(2)   A suspension of a process such as the execution of a computer program caused by an event external to that process and performed in such a way that the process can be resumed. Synonymous with interruption.

Intersection

(1)   The set of elements common to two or more sets; especially, the set of points common to two geometric configurations.

(2)   The coexistence of end points at a specific geographic location; the set of all objects common to two or more intersecting sets.

(3)   A function which generates the locations of the coincidence of two or more features (line or area) In a data base, resulting in a series of point locations representing the crossing points of the data elements.

Inventory Data

(1)   A class of spatial data base that depicts each element in a data base through a number of descriptive data sets. Inventory data bases are designed to present information about specific items rather than support more sophisticated analytical and procedural computer applications. An example of an inventory data base would be one that presents a group of data items for each building permit data base and supports the interactive or transaction-oriented update of these data items. More sophisticated systems, such as permit tracking systems, enhance inventory data bases by providing methods for following the procedures

associated with a permit from application to acceptance or rejection, assuring the timely completion of all evaluations associated with the permit.

(2)   A class of data on all resources managed by BLM (e.g., wildlife habitat, cultural resources, etc.) gathered during field or office surveys.

Inventory Survey

A survey for the purpose of collecting and correlating engineering data of a particular type (or types) over a given area. An inventory survey may be recorded on a base map.

Inverse Transformation

Routine that performs projection transformation that goes from a specified rectangular earth coordinate system to spherical (latitude and longitude) coordinates.

Inversion

A term used to describe many functions in spatial data analysis. The most common application of the term involves the redirection of relative description data such as legal descriptions. In many functions, metes and bounds calls in legal descriptions are inverted by reversing the directions of the call angles.

Invitation For Bids (IFB)

The solicitation document for use in advertised procurement (sealed bidding).

Irregular Grid

A grid cell element in which each data base may be unique in size and shape. Two basic types of irregular grids are random grids, such as a mesh of contiguous triangles, and systematic irregular grids, such as polar coordinate grids made up of a telescoping array of cells. A major problem with irregular grid cell schemes is the inability to develop simple direct addressing for a grid element. In many instances, irregular grid schemes are as cumbersome to use in analytical applications as coordinate data bases. Irregular grids often prove superior to regular grids when modeling specific surface phenomena, such as terrain (triangulated grids) and storm surge (telescoping grids).

Irregular Line

A complex line which cannot be easily described by a mathematical polynomial.

Island

(1)   A portion of a coordinate string for a polygon boundary that represents

a cut-out within the area. The term *exclusion* is commonly used to describe an island.

(2)   Refers to a polygon completely enclosed within another polygon.

(3)   A body of land extending above, and completely surrounded by, water at mean high water level.

Item

(1)   In MOSS, the smallest unit constituting a map. For a point map, an item is a single x-y coordinate; for a line map, it is a distinct line segment; for a polygon map, it is a unique closed array of line segments; and for a cell map, it is an individual cell.

(2)   In general, one member of a group; for example, a record may contain a number of items such as fields or groups of fields, a file may consist of a number of items such as records, and a table may consist of a number of items such as entries.

(3)   A collection of related characters treated as a unit.

Jaggies

Slang term often used to describe the blockier or jagged appearance of raster-based graphics produced by low resolution plotters and terminals, such as those supported on microcomputers.

Job

(1)   A unit of work. More specifically, a job is frequently used to refer to the procedures involved in submitting a program (or group of programs) to the computer and having that program executed. A job is submitted to the computer along with a series of special commands or instructions. These instructions are usually referred to as job control language, or JCL.

(2)   A collection of one or more tasks grouped by the user as being related pieces of work.

Join

(1)   An area where two or more adjacent maps or images are brought together to form a continuous model.

(2)   A relational algebraic function that combines information from two relations into a single relation based on a key attribute that is common between the two input relations. The result of a join function is a data base having selected (or all) attributes from two relations. The individual rows in this relation represent all records that were matched uniquely from one relation to another. A join function performs similarly to a simple match program between two independent data files having a common data field.

Joystick

A computer input device used to control the movement of a cursor on a terminal (graphic) display screen. Joysticks move the cursor relative to a pointed direction based on the position of the joystick rod. Joysticks often provide a data entry vehicle for picking a particular screen location.

Junction

Refers to the point (node) where two or more line segments join together.

Juncture

A location in a directed flow network where phenomena pass from one logical network segment to another. Juncture is a term applied to nodes in networks that simulate utility facility networks such as electrical, water, sewer, and storm sewer.

Jurisdiction

An acknowledged principle of law that the title and disposition of real property is exclusively subject to the laws of the country where it is situated, which can alone prescribe the mode by which a title to it can pass from one person to another.

Justify

To adjust the printing positions of characters on a page so that all of the lines have exactly the same length and so that both the left- and right-hand margins are regular. The term *ragged right* is used to describe the right-hand margin when a page is not justified.

K

A convenient abbreviation for the value 1,024. Thus 32K means the value 32,768, not 32,000 as expected.

KB (KILOBYTE or KILOBIT)

Either 1,024 bytes, or 1,024 bits. Sometimes the context will allow the reader to guess the proper meaning.

Kernel

(1) A nucleus or core, as in the kernel of an operating system.

(2) An encapsulation of an elementary function. Kernels can be combined to form some or all of an operating system or set of firmware.

(3) A model used in computer selection studies to evaluate computer performance.

Key

(1) One or more characters within a set of data that contains information about the set, including its identification.

(2) A unique identifier for a relational table.

Key Data Element

A data element from which one can infer other data elements.

Keyboard

The set of keys that allows one to enter data into the computer.

Keypad

A numeric keyboard with the keys arranged in adding machine fashion to facilitate numeric entry. The keypad may be integrated into a "full" typewriter keyboard located immediately to the side of the typewriter keyboard or may be housed separately.

Kilo

One thousand, e.g., kilometer, kilobyte.

Known Geologic Structure (KGS)

A structural or stratigraphic geologic trap in which an accumulation of oil or

gas, determined to be productive, has been discovered by drilling. A KGS includes all acreage that is presumptively productive. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 abolished this category of public lands; although lease offerings made before December, 1987 and still pending are subject to KGS review.

Known Geothermal Resource Area (KGRA)

An area in which the geology, nearby discoveries, and competitive interests, in the opinion of the Secretary, engender a belief in those "experienced in the subject matter" that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose.

Label

(1)   One or more characters within or attached to a set of data that contain information about the set, including its identification. Synonymous with key.

(2)   In computer programming, the identifier of an instruction.

(3)   An identification record for a tape or disk file.

(4)   In MOSS and MAPS, the alphanumeric word or phrase used to describe a map subject.

(5)   An identifier assigned to an attribute.

Label Point

Where an attribute/label is located on a map.

Land Cover

A classification of land that identifies areas of common surface geology and vegetation coverage. Land cover classifications support a number of applications such as species habitat suitability and timber harvesting volume assessments. Land cover classifications are distinguished from land use classification systems; however, a number of efforts have attempted to combine land use and land cover classification systems. Land cover classification systems vary greatly, based on the application requiring the classification and the actual methodology used to provide the assessment. One system for evaluating cover is based on traditional aerial photographic interpretation; another system classifies cover by using digital remotely sensed products such as LANDSAT data.

Land Data

Data which are referenced in a manner that permits their handling in a spatial context, as in a geographic information system.

Land Description

Any recognized method of describing a parcel of land, including, but not limited to, the Public Land Survey System, metes and bounds, parcel numbering, and tracting.

Land Disposal

A transaction that leads to the transfer of title to public lands from the Federal Government.

Land Graphic System (LGS)

A color graphics software package that was developed by the Bureau of Land Management for demonstration purposes during a phase (called the "Blueline") of the Farmington Demonstration Project. Initially intended to meet the needs of one process, the Application for Permit to Drill (APD), it has been used as a general purpose mapping tool. It allows for the selection of a variety of colors, font styles, hatches, and symbols that can be used to create maps, overlay resource themes, and highlight conflicts for decisionmakers. Its main features are full color capability, cross-hatch and color-fill options, software zoom and pan, windowing, label placement, data-masking, customized legends, multiple device support, and the ability to support user-defined symbols.

Land Information System (LIS)

An automated system that focuses on the management of land and its resources, both surface and subsurface. LIS is a <u>concept</u> directed towards the linkage of three major BLM data bases: the Geographic Coordinate Data Base (GCDB), the Automated Land and Mineral Record System (ALMRS), and the Automated Resource Data (ARD). This linkage may occur manually through automation (using existing hardware, software, and telecommunications) or through a combination of automated and manual processes.

The LIS has three key components:

(1)   The automated Geographic Coordinate Data Base (GCDB), which is built upon the Public Land Survey System (PLSS) inputs;

(2)   An Automated Land and Mineral Record System (ALMRS) to provide alphanumeric and graphic information about land status and use authorizations; and

(3)   An Automated Resource Data (ARD) component that depicts the resource values and characteristics of the land, using current Geographic Information System (GIS) technology that can graphically display and analyze overlays of records and resource information.

Land Net

See Rectangular Surveys.

Land Ordinance Management System (LOS)

A management information system that monitors one process, some processes, or all processes related to land transactions in a local government. The most common example of a land ordinance system is one that manages a comprehensive inventory of building permits and related inspection data. Most land ordinance systems currently under development will support the complete tracking of many processes related to local land transactions. The most

significant of these processes is the one that follows the process of approving new subdivisions in an area. Most land ordinance management systems are made up of several interrelated processes. For instance, a system can monitor new subdivision applications, zoning change requests, and all permits related to the land ordinance.

Land Record

A document in a public file which contains the definitive statement of some characteristic of a piece of land that is a matter of public interest.

Land Resource Satellite (LANDSAT)

A series of unmanned, U.S. earth-orbiting satellites that transmit images to earth receiving stations; designed primarily for the collection of earth resources data. The LANDSAT system passes through a static set of orbits that provides entire coverage of the earth every 16 days. The current system provides two sets of data, one a lower resolution data set called Multispectral Scanner (MSS) data and the other a high resolution data set called Thematic Mapper (TM). LANDSAT data have been used for a large number of resource management functions such as land cover interpretation, vegetation determination, habitat identification, and geological applications.

Land Tenure

Describes the relationship of man to the land. Tenure is derived from the Latin word *tenet* meaning "to hold," so land tenure describes the way in which land is held. Tenure may be independent of title, as in squatter's rights.

Land Title

(1)   The union of all of the elements which constitute ownership, at common law divided into possession, right of possession, and right of property (the last two being considered essentially the same).

(2)   That which constitutes a just cause of exclusive possession; the facts or events, collectively, which give rise to the ownership of property, real or personal.

(3)   The instrument which is evidence of a right. See also Color-of-Title, Torrens Title System.

Land Transaction

Any procedure that results in a change in the status of one or more legally delineated parcels of land. A land transaction can range from a simple surface ownership transfer to a complex redefinition of delineated parcels into a subdivision. The types of valid land transactions vary drastically from one state or county to the next because of state or local land ordinances. Other

examples of common land transactions are zoning change requests, zoning variance procedures, land use change procedures, site development plans, and the potentially large number of permit procedures that must be approved as a prerequisite to certain land activities. The best example of land transaction permitting procedures in state government are those processes associated with Developments of Regional Impact.

Land Use

A categorization of land that reflects the current use of a specific parcel of land. Land use classification systems vary dramatically based on the primary purpose of the classification system. For instance, a use classification system designed primarily for transportation planning evaluation will vary greatly from one that is used to classify wetland areas for habitat suitability. Most land use classification systems in local government systems are developed primarily as parcel classification systems for use in the automation of land assessment procedures. Parcel land use systems will often classify land in a way greatly divergent from a system that interprets land use using traditional aerial photographic interpretation techniques. Land use classification should be distinguished from land cover classification systems. Land cover classification systems are oriented toward capturing the actual geological and/or vegetation cover on the land (e.g., pine forests) rather than the use of the land (e.g., commercial forestry).

Land Use/Activity Plans

A functional category that includes Resource Management Plans (RMP), Management Framework Plans (MFPs), and individual activity plans such as Allotment Management Plans (AMPs), Habitat Management Plans (HMPs), etc. System automation is needed to retrieve land and record information, analyze information, and develop reporting systems for the "tracking" of implementation of objectives.

Lands

(1)   Specific parts of the earth considered as property, including both the surface and mineral estate.

(2)   A term used to refer to the Bureau's Realty Program.

Language Translator

A general term for any assembler, compiler, or other routine that accepts statements in one language and produces equivalent statements in another language.

Large Scale

A term used to describe a map that depicts a small amount of land area on a

relatively large map sheet. Large-scale mapping bases are maintained by local governments; these are generally scaled 1:12,000 (1 inch to 1000 feet) or less.

Latitude

The distance north or south from the equator, measured in degrees.

Lattice Theory

The concepts used for ordering mapped areas according to those areas that include other areas. Where the inclusions are simple and undivided, this describes a hierarchy. Lattice theory provides the framework for disclosure analysis.

Layer

(1)   A set of data classifications into which data can be entered and registered to a common geometric or geographic coordinate system for selective display and editing under access control. Layer membership is an attribute of a graphic element.

(2)   A concept in coordinate-based spatial information management systems that conceptually organizes graphic information into layers. Most turnkey mapping and analysis systems support the storage of a predefined number of layers in a single data base. Each layer can be displayed and processed either individually or in combination with other layers.

(3)   Refers to the various "overlays" of data, each of which normally deals with one thematic topic. These overlays are registered to each other by the common coordinate system of the data base.

Layered Window

Computer screen capability where windows can be stacked on top of each other or can be moved around or interchanged on the screen, like pieces of paper on a desk (as on the Macintosh microcomputer).

Leasable Minerals

Energy-related minerals on Federal lands such as oil, gas, and coal that can be developed under the Mineral Leasing Act of 1920 and many other acts and subsequent statutes. Mineral data bases support management decisions in three broad categories: exploration, development, and production.

Lease

An authorization (usually long term) to use public lands or resources for a fixed period of time.

Lease Management System (LMS)

A system that maintains data on oil, gas, and other mineral leases (except coal) on public lands; produces billings, receipts, and management reports.

Lease Ownership Records System (LORS)

A system which gathers, stores, and updates lease information for tracking ownerships, locations, land use stipulations, and status.

Lease versus Purchase

The concept of determining whether a lease or purchase proposal offers the government the lowest overall costs FPMR 101-35.211, FIRMR 201-35.211.

Least Squares Adjustment

Method of adjusting observations in which the sum of the squares of all the deviations or residuals derived in fitting the observations to a mathematical model is minimized. Such an adjustment is based on the assumption that blunders and systematic errors have been removed from the data, and that only random errors remain.

Left Attribute

Refers to the area that lies to the left of a particular map line as that line is traversed. This relative directional reference is used in data bases to document the areas that lie on either side of a particular map line. The left attribute of a polygon generally refers to the polygon that falls to the left of the line as the line is traversed in the direction of map digitization. The left attribute also refers to the polygon that, when chained in a clockwise direction, uses a particular line segment opposite the direction it was digitized. The terms left and right attributes are used in the context of topological data structure, those geographic data bases that meet a predefined logical consistency (see term Topological). The Geobased DIME flies of the 1970 and 1980 Censuses were one of the original data bases to employ topological data structures that distinguished between areas to the left and right of a line.

Left Justify

To adjust the printing positions of characters on a page so that the left margin of the page is regular.

Legal Description Language Interpreter

BLM software that converts Legal Land Description (LLD) files to map coordinate system information.

Legal Land Description (LLD)

Survey information as described on master title plats, including geopolitical information; part of ALMRS.

Length

The number of either bytes (characters) or bits in a given unit of storage such as a computer word or a field.

Level

(1)   The degree of subordination of an item in a hierarchical arrangement.

(2)   A rank within a hierarchy. An item is at the lowest level if it has no subordinates and at the highest level if it has no superiors.

Level of Documentation

A description of required documentation indicating its scope, content, format, and quality. Selection of the level may be based on project cost, intended usage, extent of effort, or other factors.

Library

(1)   A collection of organized information used for study and reference.

(2)   A collection of related files. For example, one line of an invoice forms an item, a complete invoice forms a record, the complete set of such records forms a file, and the collection of inventory control files forms a library. (The libraries used by an organization are known collectively as its data bank).

Licensed Software

A license from a software vendor to make copies for more than one site.

Life Cycle

The expected useful life of an automated or manual record system to the government; also commonly called systems life or items life.

Life Cycle Costs

The total costs of using a system over the expected useful life, including vendors' charges and other costs necessary to assess true expenses and adjustments that must be made for the impact of residual value and present value.

Life Cycle Management (LCM)

A process of automated system development that begins with the identification of user needs and results in the operational use of a system to meet those needs. The Life Cycle Management process is a step-by-step planning process that assures systems will meet user needs. A system's life cycle, or the period of time it remains current and continues to meet user needs, is variable but generally ranges from 5 to 10 years.

Light Pen

A hand-held computer input device resembling a pen which communicates with a video screen that senses the position of the pen relative to an origin point on the screen. Most light pens work by being detected by the screen's electron beam as it scans the pen during one of its standard refreshing cycles (about 1/30 of a second). This allows identification of the display element that was "seen" by the light pen for a special record or for further processing.

Line

(1)   A communications channel, circuit, path, or link (including a satellite or microwave channel) connecting one or more devices.

(2)   A level of spatial measurement referring to a one-dimensional defined object having a length and direction and connecting at least two points. Examples are roads, railroads, telecommunication lines, and streams.

Line Hit

In practical terms, a disturbance causing (normally) a detectable error on a communications line.

Line Patch

A fragment of a scan line, the radiometric values of which have been synthetically generated by interpolation from adjacent scan lines. This scan line fragment is then used to replace a section of a missing or obviously incorrect scan line.

Line Printer

An output device for computers which prints one line at a time (as a unit). It can be used as a high-speed printer or, by spacing symbols, as a plotting device. Synonymous with line-at-a-time printer.

Line Segment

A line with terminal coordinates defining its limits.

Lineage

Information about the data source, particularly the original scale, accuracy, etc.

Linear Features

One of three basic classes of mapped features that may be represented in spatial data bases. Lines on maps are features appearing as single delineations that do not close. Features that appear as lines on a map of a particular scale (1":1 mile map of a county) may appear as a single point on a smaller scale map (1:500,000 map of a state). Most linear features are defined, in spatial data bases, to represent a line that connects the intersection point between one or more other linear features. Applying this definition to road maps, a linear feature is a line between two intersections or other significant point along the road (rest area, city, etc.).

Linear Network

The use of a linear topology to depict directed relationships between points and lines on a map. In digital form, linear networks are maintained as directed tree structures that can be used to model linear distribution systems such as transportation and drainage. The system is called a network because the relationships between intersections (nodes) and lines (links) can be bidirectional rather than hierarchical.

Linear (Node-Link) Network Data Bases

One of the six major types of spatial data bases. Node-link networks are designed to store information dealing with intersecting linear systems such as roads, rivers, and utility systems. Network data are stored by nodes and links. A node is a junction where two or more links meet. In the state highway system of Florida, for example, a node is a major highway intersection where a series of links (segments of highway) meet. In network data bases, delineation of relationships between nodes and links is often more important than the accurate capture of coordinate representations of the system. For example, it is more important to know what two highways meet at a particular intersection than it is to draw the highway segments on a map. Another key attribute of networks is that they are used almost universally to simulate flow throughout a depicted system. In a highway network data base, for example, each node and link is usually coded for traffic densities and other key variables related to the flow of traffic. Many node-link networks are used by models that simulate and assess impacts on a particular system.

Link

(1)   To combine program "modules" into a single executable program using a "linkage editor."

(2)   A data-communications line connecting two or more "intelligent" machines.

Linkage (Data Records)

(1)   In programming, coding that connects two separately coded routines.

(2)   Between computer programs, the establishment of common points of
       reference for communications. A utility called a linkage editor builds
       these points of reference into the programs as memory address. Linkage
       can also be accomplished by external means, such as passing files
       between programs, or by the use of predetermined memory locations.

List

(1)   An ordered set of data items .

(2)   To print or otherwise display items of data that meet specified criteria.

(3)   A command verb used under time sharing to print a data file.

Listing

A textual computer output in the form of a human-readable list.

Little Link

Honeywell term for a segment of data storage on disk media; 320 words or
1,280 bytes.

Local Area Network

A network consisting of two or more interconnected computers which are
located in or confined to a specific area, such as a building or a portion of a
building.

Local Area Rubbersheeting

Topological process of stretching or shrinking a subarea or portion of a map
or image to fit in registration with selected control points.

Local Resampling

(1)   Evaluating cells in the neighborhood of a cell and changing the cell's
       value based on some rule, such as making it the same as the largest
       number of cells in the neighborhood.

(2)   Registration over a small area, e.g., a single township within a data set
       encompassing a larger area.

Location

(1)   In mining, the perfecting of a right to possession of a mining claim for mining purposes. This includes the staking of the claim, potentially the sinking of a discovery shaft, the discovery of a valuable mineral, posting a notice of location, and recording the claim.

(2)   Information about all facets of the Public Land Survey System, land parcels, and the land net.

Locational Data

In GIS, data which are assigned x,y coordinates, to designate some specific place on the earth's surface.

Locking

Pertaining to code extension characters that change the interpretation of an unspecified number of following characters.

Logic Bomb

A program or part of a program that when executed at a specific time performs a particular act or function. The time bomb is the most common of these; it can be set to completely destroy a system at a particular time.

Logical Consistency

Refers to the topologic structure of the data within a data base and its ability to relate spatial elements to each other without contradictions.

Logical Data Structure

A data structure that is concerned with the logical interrelationships of the data contained in the data structure. For example, a relational data base management system (RDBMS) organizes data in such a way that the user accesses the information needed without concern for the physical structure of the data. The RDBMS assumes the responsibility of providing the physical links between individual data items and larger groupings of data within the data base. The programmer or user need only identify the logical relationships of data items. Major advantages of a logical data structure are (a) the avoidance of concern with the physical structure when accessing the data and (b) the avoidance of redundancy—the problem of storing the same data more than once within the data base. The major disadvantage of this type of data base (other than the complexity of its design) is the fact that it generally requires more processing time in the form of machine overhead. Contrast with Physical Data Structure.

Logical Data Model

A model of the Bureau's data stores and their relationships as derived from the Enterprise Model.

Logical File

A file independent of its physical environment. Portions of the same logical file may be located in different physical files, or several logical files or parts of logical files may be located in one physical file.

Logical Identifier

A name which authorizes access to a system (e.g., ALMRS or MBO). It identifies the type of terminal being used and which State it relates to.

Logical Operators

Phrases (such as "and", "or", "not") used in combining data that involve union, intersection, complement, or exclusion. Also see Relational Operators.

Longitude

The distance on the earth's surface east or west of a defined meridian, usually the meridian of Greenwich, England (0° Longitude), measured in degrees.

Longitudinal Redundancy (parity) Check (LRC)

A method of error detection that collects and clocks parity for each code level. Traditionally, magnetic tape recording is done in a number of tracks equivalent to the number of bits per character; LRC then collects parity for each track. Parity is a two-level (odd/even) information element.

Loop

A set of instructions that may be executed repeatedly while a certain condition prevails or until a certain condition is satisfied.

Lotus 1-2-3

A financial software package from Lotus Development Corporation whose strength lies in its ability to deal with spreadsheets.

Lowest Overall Costs

The concept of lowest life cycle costs to use a system (FPMR 101-35.211,FIRMR 201-4.1102-10 and FPR 1-4.1102-10). See Life Cycle Costs.

Machine Instruction

An instruction that a machine can recognize and execute.

Machine Language

(1)   A language that is used directly by a machine. Contrast with Higher Order Language.

(2)   Coded instructions that can be understood by the computer without translation.

Machine-Oriented Language

A programming language that is more like a machine language than a human language.

Macro

A predefined sequence of instructions that is inserted into a program during assembly or compilation at each place that the corresponding macroinstruction appears in the program.

Macroprocessor

The portion of some assemblers and compilers that allows a programmer to define and use macros.

Magnetic Disk

A computer memory device on which data are available by random access.

Magnetic Ink Character Recognition (MICR)

Associated with the unusually shaped numbers at the bottom of bank checks.

Magnetic Tape

A computer memory or data storage medium (device), usually a ribbon or polyester film with a magnetic oxide coating, which will store a large amount of data; the stored data can only be retrieved (by a sequential search) by loading the tape to a tape drive and reading the tape into the CPU of a computer.

Main Memory

Usually the fastest storage device of a computer and the one from which instructions are executed.

Maintainability

(1)   The ease with which software can be maintained.

(2)   The ease with which maintenance of a functional unit can be performed in accordance with prescribed requirements.

(3)   Ability of an item under stated conditions of use to be retained in, or restored to, within a given period of time, a specified state in which it can perform its required functions when maintenance is performed under stated conditions and while using prescribed procedures and resources.

(4)   Capacity for making updates in an efficient and cost-effective manner to a data base or software.

Maintenance

Activities intended to eliminate faults in software that turn up after the design has been implemented, or to assure that a system functions the way it was originally designed.

Maintenance Time

That part of down time that is being used for maintenance; includes preventive maintenance (PM) and remedial maintenance (RM).

Management Information System (MIS)

(1)   Management performed with the aid of automatic data processing.

(2)   An Information system designed to aid in the performance of management functions.

Management Reporting and Statistics (MRS)

A planned group of outputs, either screen or hard copy of data, to support management activities or future planning.

Mandatory Requirements

Those technical and contractual requirements or features which are deemed essential by the government. They are generally subject to negotiation in a Request for Proposal but not in an Invitation for Bid. However, matters of law are never subject to negotiation.

Mandatory Schedule

A type of GSA schedule that is mandatory for agencies to use as a primary source of supply. Most Federal Supply Service Schedules fall into this

category. However, ADP schedule contracts do not, except for those GSA contracts classed as mandatory requirements contracts.

Manual Digitization Technique

The manual capture of map data and its transfer to electronic map data.

Manually Digitize

Refers to the process of converting an analog map or overlay into numeric format with the use of a digitizing table/tablet and manually tracing the input data with a cursor.

Manually Encode

Refers to the process of data input, including tabular and attribute information, into a computer-compatible format through the use of direct operator interaction with collection and/or storage system peripherals.

Map

A representation on a plane surface, at an established scale, of the physical features (natural, artificial, or both) of a part or the whole of the earth's surface (or any celestial body) by means of signing, symbols, and labels, and with the means of orientation indicated. A map may emphasize, generalize, or omit the representation of certain features to satisfy specific requirements. The type of information which a map is designed primarily to convey is frequently used, in adjective form, to distinguish it from maps of other types. Map is not synonymous with plat. See Base Map, Planimetric Map, Topographic Map.

Map Boundaries

Lines that bound the body of a map, usually parallels and meridians; also referred to as neatlines or sheet lines.

Map Overlay and Statistics System (MOSS)

A Bureau graphics analytical tool used for resource evaluation and portrayal.

Map Projection

A system of lines on a plane representing a corresponding system of imaginary lines on an adopted terrestrial or celestial datum surface; also, the mathematical concept of such a system. For maps of the earth, a projection consists of (a) a graticule, or latticework, of lines representing parallels of latitude and meridians of longitude, or (b) a grid. A map projection may be derived by geometrical construction or by mathematical analysis. Projections derived by mathematical analysis are generally used for maps constructed with survey data.

Map Scale

The relationship between a distance on a map and the corresponding distance on the earth. Map scale may be expressed as an equivalence, usually by different units (1 inch equals 1 mile); as a numerical fraction or ratio (1/63,360 or 1:63.360); or graphically as a bar scale.

Map Series

A family of maps conforming generally to the same specifications or having some common unifying characteristic.

Map Type (File Type)

In MOSS and MAPS, data referred to by a unique number: point = 1, line = 2, polygon = 3, dichotomous = 6, discrete = 7, continuous = 8.

Mark

The signal (communications channel state) corresponding to the binary numeral one. The marking condition exists when current flows (current-loop channel) or when the voltage is more negative than -3 volts (EIA RS-232-C channel).

Marker

A graphic primitive; synonymous with point and/or symbol.

Mass Storage

A type of memory component capable of retaining and communicating vast amounts of data, often in the trillion-bit range.

Master Data Base

In MOSS and MAPS, a disk file containing all of the permanent maps associated with a particular project.

Master Terms and Conditions (MTC)

A contract developed by GSA/ADTS and used to purchase on a "brand name or equal" basis either ADP or plug-compatible ADP equipment.

Master Title Plat

A composite of the survey plats of a township on which is shown the ownership, land status, and use as represented by a standard set of lines and symbols.

Match/Merge

A computer program that compares (matches) land and mineral records data to the Legal Land Description (LLD) survey data file, identifies non-matched data where necessary, runs several conversion routines, and merges it into a verified data file. The LLD survey file is preserved.

Mathematical Adjustment

Mathematical procedures for applying of corrections to observations. This is done to reduce errors or remove internal inconsistencies in derived results.

Matrix Printer

A printer in which each character is represented by a pattern of dots. Synonymous with dot printer, stylus printer, or wire printer.

Maximum Order Limit (MOL)

A limit on the size of an order within a schedule or contract based on quantities, dollars, or some combination of these two factors.

Maximum Practical Competition

The concept that requires the government to elicit the maximum possible number of offers or bids on a procurement based on the needs of the government. The government is not required to "water down" a statement of requirements to enlarge the circle of competition, nor is it allowed to exclude qualified bidders or offerors in advance of receiving bids or proposals merely to avoid evaluation of large numbers of bids or proposals. If too many proposals are received to handle the evaluation and negotiation phase, a competitive range may be used.

Meander

The traverse run at the line of mean high water of a permanent body of water. Meanders in original surveys are run not to define boundaries but rather to define the bank or shore generally and to determine the quantity of land.

Mega

A prefix meaning one million in a base-ten number system.

Memory

An organization of storage units (bits, bytes) into which data and instructions can be entered, held, and retrieved at a later time; loosely, any device that can store data.

Menu

(1)   A list of options displayed on a screen from which the user can select
       a program to be run or another menu to be displayed.

(2)   A display of possible software options, that is used for selecting and
       activating interactive commands in a graphics system. It may have several
       realizations even on the same system. A typical menu is represented by
       an array of system command names, mounted on a digitizing surface or
       appearing on a graphic display. A particular command is selected and
       executed by positioning a cursor over the name and pressing an input
       contact.

Merge

(1)   To combine two or more groupings of data into one group, usually in a
       specified sequence.

(2)   To take two or more maps or data sets and combine them into a single,
       coherent map or data base without redundant information.

Merge Statistics

Values generated as a result of joining data coverages.

Message

(1)   Information displayed or printed by a computer system as the result of
       some processing activity. A message may originate from several sources.
       It may be produced directly by the computer's operating system in
       response to a problem or condition detected within the system. Often,
       messages are set up within a program to provide information to the user.

(2)   Any discrete group of binary digits or characters transmitted as a single
       unit of data. A message is composed of the actual data being
       transmitted. However, also included within a message is controlling data
       that identify the destination of the message as well as its beginning and
       end. Error-correcting and error-detecting information such as parity bits
       are also considered to be a part of the message.

Message Switching

A computer-based switching technique that transfers messages between points
not physically connected. The switching facility receives messages, stores them
in queues for each destination point, and retransmits them when a facility
becomes available. It trades delivery time for lower cost when compared to
direct interconnection of all points.

Meta Data

Data about data; the names and attributes of data entities as stored in the data dictionary.

Metafile

A file that describes a file.

Metes and Bounds

A method of describing a parcel of land by citing the owners of abutting lands and describing the length of each course of a boundary as being along some apparent line, such as a stream or road. In modern usage, a metes and bounds description includes the bearings and distances of each course and is used to describe land patterns that do not fit regular rectangular survey methodology.

Microcomputer

(1)   A complete general or special-purpose electronic digital computer with integral processing unit, storage, and input/output bus, usually constructed around a single Large Scale Integrated (LSI) circuit chip or printed circuit board. It may be packaged as a desk-top unit.

(2)   A small, comparatively inexpensive computer, usually satisfying the needs of one, or a very few, individuals. A microcomputer does not routinely execute more than one program at a time.

Microfiche

A frame, or frames, of microfilm mounted in a card on which can be printed a description of the microfilm. Generally, each frame contains a 6 x 12 array of 72 images which may represent 72 pages of text.

Micrographics

The technology that relates to the reproduction of information or documents in the form of microform media (microfilm or microfiche). Micrographics includes computer output that is printed directly as a microform medium.

Microprogram

A sequence of elementary instructions that correspond to a computer operation, are maintained in special storage, and are initiated by the introduction of a program that assembles the microinstructions into a group that can then perform operations required by high level languages; these include mathematical functions such as add or multiply.

Microsecond

One-millionth of one second.

MicroSoft Disk Operating System (MS-DOS)

A disk operating system from MicroSoft Corporation for managing disks and disk files on a computer.

MicroSoft Word

A word processing software package developed by MicroSoft Corporation for use on microcomputers.

Milestone

A scheduled event for which some project member or manager is held accountable and that is used to measure progress; for example, a formal review, the issuance of a specification, or a product delivery.

Military Bases - Department of Defense (DOD)

Federal lands withdrawn from the public domain or acquired from state or private owners for military purposes and controlled by DOD; the records are maintained by BLM. A data base is required to track these lands in conjunction with DOD requirements. Some active military lands are open to leasing, but only in agreement with the military commanders.

Millisecond

One-thousandth of one second.

Millsite

A piece of patented or unpatented public land, nonmineral in character and not contiguous with the dependent claim or claims, that is used to support mining or milling purposes for the dependent claim or claims.

Mineral Resource Inventory (MRI)

An inventory of mineral resources found on public lands. This inventory may be the result of one or many scientific methods used to identify the presence or absence of one or more mineral resource values. Examples of methods include geochemical or geophysical surveys.

Minicomputer

A small to medium-sized computer built for on-site installation. Minicomputers are usually able to execute several programs concurrently, while large

computers generally serve a diverse set of users and applications. There is no clear-cut distinction between a large microcomputer and a small mini, except that the mini is expandable to a much greater extent than a micro. The meaning of this term has been considerably blurred by increasing miniaturization, tumbling storage costs, and the increasingly sophisticated software available for micros.

Mining Claim

An unpatented piece of public land which has been identified in the field, "located" by staking its corners and posting notice within its boundaries, and recorded in the county recorder's office and the BLM's designated state office in compliance with United States mining laws and appropriate state statutes. Mining claims are of two distinct classes: lode and placer.

Mining Claim Recordation (MCR)

A requirement of FLPMA that mining claimants notify, in writing, the proper BLM office of the location of unpatented mining claims. The notification takes the form of a copy of the county location notice or certificate, supplemented by name or number of the claim, name and current mailing address of the owner or owners of the claim, type of claim, date of location, a description of the location of the claim to closest 160-acre quadrant of a section; and a drawing of the claim plotted on a USGS topographic quadrangle map (or a sketch of the claim referring to some similar topographic base map).

Mining Claim Recordation (MCR) System

A system developed to assist in the recordation of mining claims and mill or tunnel sites as required by FLPMA. Input from and output to State Offices is generated from programs on the Honeywell DPS-8 located at the Service Center.

Mode

(1)   The method of operation or usage. For example, a computer is in "input mode" when it is ready to accept data. A central processing unit (CPU) is operating in "batch mode" when it is processing a batch job.

(2)   The most frequent appearance of a specific value in a group of values.

Model

(1)   A representation of a real world process, device, or concept; for example an analytical model, availability model, or a debugging model.

(2)   Representation of reality in a numeric format capable of being displayed and manipulated.

Modeling

The ability to create situations or scenarios on a computer and forecast answers by adding, deleting, or changing factors.

Modem (MOdulator-DEModulator)

A device that modulates and demodulates signals transmitted over communications facilities. Modems are typically used to call a computer from a terminal.

Modernization

A long-range plan in BLM to upgrade and standardize systems and hardware. Components of Modernization include development of the Land Information System, replacement of the Honeywell mainframe computer, replacement of the Wang equipment (office automation), and expansion of the use of personal computers.

Modification

A change made to some tangible item. In the context of Modernization, change made to a contract, computer software, or computer hardware; or the process of changing same.

Modular Decomposition

A method of designing a system by breaking it down into modules.

Modular Programming

A technique for developing a system or program as a collection of modules.

Modularity

The extent to which software is composed of discrete components such that a change to one component has minimal impact on other components.

Modulation

Impression of information on a carrier signal by varying one or more of the signal's basic characteristics: frequency, amplitude, or phase. Differential modulation carries the information as the change from the immediately preceding state rather than the absolute state. Modulation is used in modems and data sets to make business machine signals compatible with communications facilities.

Module

(1)   A major individual component of a larger whole; a standardized, interchangeable unit; a building block.

(2)   A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading, e.g., the input to or output from an assembler, compiler, linkage editor, or executive routine.

(3)   A packaged functional hardware unit designed for use with other components.

Monitor

A video device, its casing, and the associated circuitry.

Monochromatic

One color on a contrasting background.

Monument

Physical structure which marks the location of a corner or other survey point. In public land surveys, the term *corner* is employed to denote a point determined by the surveying process, whereas the *monument* is the physical structure erected to mark the corner point upon the earth's surface. Monument and corner are not synonymous, although the two terms are often used in the same sense.

Monument, Location

Fixed reference points established to supplement the regular public land survey monuments. Location monuments are established in connection with the official patent survey of a mining claim in areas where the subdivision surveys have not been extended or the monumentation is inadequate, and where there is no public land survey corner within 2 miles of the mining claim. The survey of the mining claim is connected to the location monument, which is in turn is connected with an established corner of the public land surveys when the surveys are extended over the area. Such monuments were formerly designated as "mineral monuments."

Monument, Natural

Natural monuments are permanent natural objects, such as streams, rivers, lakes, ponds, trees, ledges, and rock outcrops used as Location Monuments.

Monument, Physical

An existing feature such as a stone, stake, tree, hill, ocean, river, or lake used as a Location Monument.

Monument, Reference

An accessory used where the site of a corner is such that a permanent monument cannot be established or where the monument would be liable to destruction, and bearing trees or a nearby bearing object are not available. See also Ancillary Ties.

Most Favored Customer

See Favored Customer Clause.

Mouse

A hand-held control device used to direct the movements of a cursor on a display.

Multidimensional Numeric Models

Representation of reality in a numeric format showing two or more dimensions which are capable of being displayed and manipulated.

Multiple Use

(1)   The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people.

(2)   Making the most judicious use of land for some or all of its various resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions.

(3)   The use of some land for less than all of the resources.

(4)   A combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values.

(5)   Harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment, with consideration being given to the relative values of the resources and not necessarily to the con.oination of uses that will give the greatest economic return or the greatest unit output.

Multiple User

Descriptive of a single data processing system that provides output to different

kinds of organizations, as in the case of an integrated supply, accounting, and personnel system.

Multiplex

To interleave or simultaneously transmit two or more messages on a single channel.

Multiplexing

Use of one facility for two or more simultaneous data paths.

Multiplexor

A hardware device that concentrates a number of low-speed channels into one higher-speed channel using multiplexing techniques (time division or frequency division); also a device capable of handling multiple signals over a single channel by interleaving the events of two or more activities or by distributing the events of an interleaved sequence to different activities.

Multiprocessing

(1)   Pertaining to the simultaneous execution of two or more computer programs or sequences of instructions by a computer or computer network.

(2)   Loosely, parallel processing.

(3)   Simultaneous execution of two or more sequences of instructions by a multiprocessor.

Multiprocessor

(1)   A computer employing two or more processing units under integrated control.

(2)   A system consisting of two or more CPUs (or ALUs, or processors) that can communicate without manual intervention.

Multiprogramming

(1)   Pertaining to the concurrent execution of two or more programs by a computer.

(2)   The execution of two or more programs or routines at the same time by sharing a single processing unit under control of an operating system, with some form of priority being assigned to each program or routine being executed. Also see Time- Sharing.

Multispectral Scanner

A line-scanning sensor that uses an oscillating or rotating mirror, a wavelength-selective dispersive mechanism, and an array of detectors to measure simultaneously the energy available in several wavelength bands, often in several spectral regions; the movement of the platform usually provides for the along-track progression of the scanner.

NAK or NACK

A negative acknowledgement that indicates a block of data was received incorrectly.

Nanosecond

One-billionth of one second.

Natural Language

(1)   A language whose rules are based on current usage without being explicitly prescribed.

(2)   A user-oriented language which can be used to search the computer files by operators who have no programming experience.

(3)   Human language, as spoken. English, French, and German are examples of natural languages. Contrast this term with Artificial Language such as the binary language used by a computer or a programming language that uses mnemonics and other symbols.

Natural Resource System

A class of spatial information management system that supports the creations of matching readable data bases representing natural phenomena (land cover, soils, etc.), the thematic overlay of these natural resource data bases, and the spatial assessment of these composite map overlays to perform functions such as suitability analysis and site selection. Most natural resource analysis systems are referred to as geographic information systems and must be distinguished in function from systems that are used in the development of detailed base mapping systems (computer-aided mapping systems). Natural resource systems are usually designed to work primarily with either vector (coordinate) data structures or raster (grid cell) data structures. Most systems that perform their analysis using one primary model or space (vector or raster) provide procedures that will convert vector data structures to raster form and vice versa. Most natural resource systems that work with digital remotely sensed information such as LANDSAT perform almost all analysis using raster forms of data. Most natural resource systems are not appropriate for constructing significant local government base map data bases such as cadastral base maps.

Negotiated Procurement

The method of procurement that is implemented by a Request for Proposal (RFP) and Request for Quotation (RFQ), or by sole-source negotiations. It is characterized by certain deliberative stages, i.e., technical evaluation, selection of a competitive range, discussion of offers within the competitive range, and selection of a contractor after receipt of best and final offers. FAR Section 15

addresses the procurement process.

Neighbor

A spatial relationship where one mapped feature lies contiguous to another. Neighbors can either share a border or simply touch at a single point.

Neighborhood Analysis

(1) Analytical techniques used to determine relationships between a point location and its n-th order neighbors.

(2) In MAPS, a type of analytical process run on cell data in which a new value is assigned to each cell as a function of the values in surrounding cells.

Nest

(1) To incorporate a structure or structures of some kind into a structure of the same kind; for example, to nest one loop within another loop or to nest one subroutine within another subroutine.

(2) To place subroutines or data in other subroutines or data at a different hierarchical level so that subroutines can be executed as recursive subroutines or so that the data can be accessed recursively.

Network

(1) A complex consisting of two or more interconnected computers.

(2) An interconnected or interrelated group of nodes.

(3) The interconnection of a number of points by communications facilities. The switched telephone network is the network of telephone lines normally used for dialed telephone calls. A private line network is a network of communication channels exclusively for the use of one customer. A network can also be a computer communications system consisting of one or more terminals communicating with a host computer system, which acts as the network control component through internal programming or, perhaps, through a front-end processor. The terminals can be local (up to approximately 2,000 feet away) or remote (connected through common carrier, specialized carrier, or private communications links). The terminals can also be "dumb" or "intelligent." There is no limit to the processing capability included in a terminal, nor is there a limitation on the number of communications lines serviced by the host system or on the number of terminals serviced on a multidrop line.   Remote concentrators can be used to efficiently utilize facilities. The general use of the word "network" to mean a collection of interconnected components is no longer precise, just as the word "system" no longer carries the

connotation of close proximity of components.

Network (Spatial Data)

A data base that depicts a mesh of connected lines. Network data bases provide explicit relationships between individual segments in the network (links) and the points at which segments connect (nodes). The depiction of the connectivity relationships between nodes and links in a network data base supports traversing the data base from one point in the system to another. Network data bases are used to simulate real world linear systems such as electric utility networks, transportation systems, and river systems.

Network Analysis

Analytical techniques concerned with the relationships between locations on a network, such as the calculation of optimal routs through road networks, capacities of network systems, best location for facilities along networks, etc. Network analysis procedures are usually unique to the type of network being evaluated, e.g., transportation, electrical, river, water, and sewer. A number of network analysis systems provide standard functions that can be performed on any type of linear system; however, the majority of network analysis systems are designed to work with a single of network theme.

Network Architecture

The philosophical and organizational concept for enabling data processing equipment at multiple locations to communicate over common carrier transmission facilities. The network architecture specifies the processors and terminals and defines the protocols and software that must be used to accomplish accurate data communications.

Network Chain

A set of interconnected lines (arcs, chains, strings) that either define the boundaries of polygons or form closed loops or circuits.

Networking

Interconnection of two or more networks (in the sense defined above under the term Network). This definition carries with it the requirement for multiple controlling of host computer systems. Each host controls it own network of terminals. The concept of networking permits terminals nominally "controlled" by one host processor to communicate directly with another host processor without the initial host being directly involved in the exchange. Normally, control of data forwarding from one node to another is performed by front-end processors to relieve the host processors.

Nickel File

A version of a GBF-DIME file where data for a single street segment is split into two data records, each reflecting the data on one side of the street. NICKEL files are used for a variety of applications, in particular those that involve site address matching and verification.

Node

(1)   Coordinate location in geographic data structure. The term node is used often in spatial data structures. Most commonly, it refers to the connection between two or more linear entities in a network of lines. In general, a node is a meaningful location along a linear element, usually a location where three or more segments meet. Nodes are also decision-making points in a network of lines that determine the flow of a process being modeled with those lines. For example, a node is the pivot location in a decision-making model that is traversing the outside boundary of an area (areal topologies). In other instances, a node can be the connection (intersection) between linear entities (road) where physical phenomena pass (traffic routine). A key relationship in data structures having nodes is to know all linear segments (chains, arcs, links) that connect to a particular node.

(2)   A termination point for two or more communications links. The node can serve as the control location for forwarding (switching) data among the elements of a network or multiple networks when networking. Node functions need not be restricted to data switching.

(3)   An end point of any branch of a network or graph, or a junction common to two or more branches.

(4)   In a tree structure, a point at which subordinate items of data originate.

(5)   In a network, a point where one or more functional units interconnect transmission lines.

(6)   The representation of a state or an event by means of a point on a diagram.

Node Reference

A number of internal tables depicting map topology that retain relationships between nodes and individual line segments. It is important that procedures be available to adjust these internal relational pointers as applicable.

Non-Corporate Data

Data which is not BLM Corporate; it may be either Corporate within a state or totally unneeded for sharing horizontally or vertically in the organization.

Personal computer files are an example of non-corporate data, wildlife information used in common by the whole state, but not meeting the criteria of BLM Corporate is another example.

Non-Proprietary Software

Software that exists in the public domain that may be copied or transferred freely. There is generally little control over anyone making changes or modifications to this software.

Non-Mandatory Schedule

A schedule that is an optional contractual vehicle. Most ADP Group 70 schedules are non-mandatory.

Non-Renewable Resources

Resources that are not capable of being replaced by ecological cycles.

Nonvolatile Storage

A type of storage (memory) that continues to hold data after the electrical power is removed. Most storage media--disks, tapes, punched cards, etc.--are forms of nonvolatile storage. The read-only memory (ROM) provided with microcomputers is also a form of nonvolatile storage. Synonymous with Non-erasable Storage.

Normalized Transformation

A transformation of map coordinates to centimeters, inches, or other appropriate units for a display device.

Number of Entries

(1)   In MOSS, the number of items on a map.

(2)   The number of document filings or record inscriptions made at the land office which are required to found a claim for a homestead or pre-emption right, and as a preliminary to the issuing of a patent for land. The word entries, as used in the public land laws, covers all methods by which a right to acquire title to public lands may be initiated.

Number Representation System

An agreed-upon set of symbols and rules for number representation; synonymous with numeral system, numeration system.
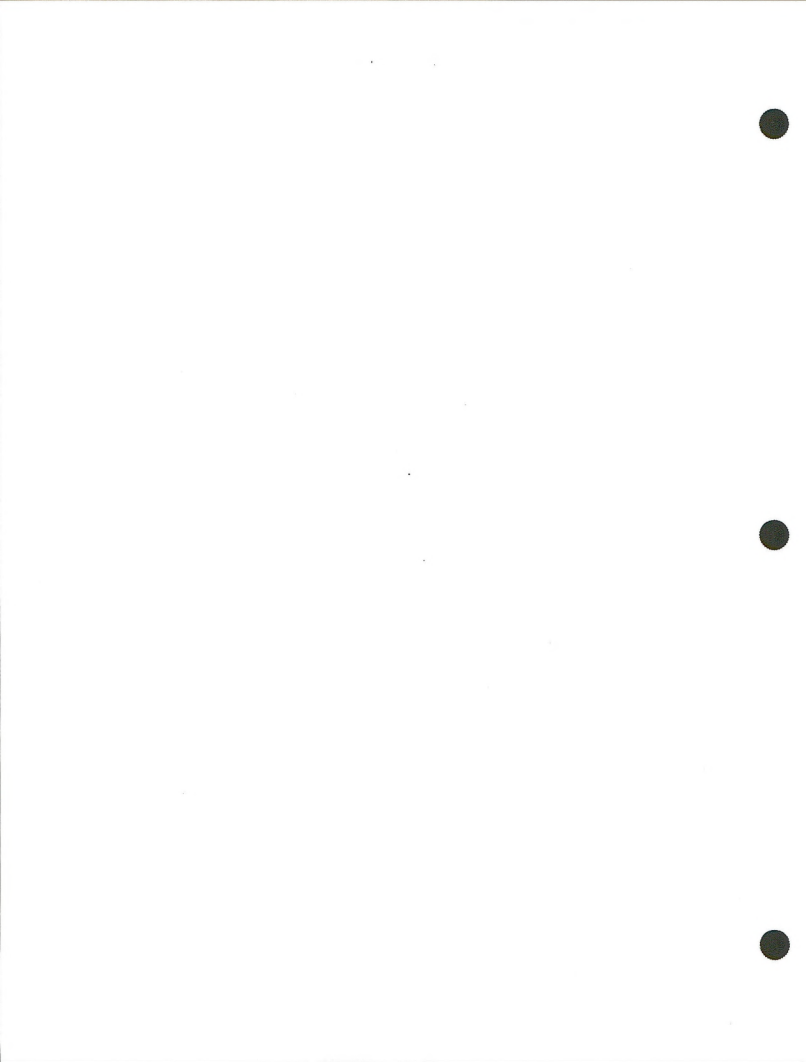
Object Code

Output from a compiler or assembler which is itself executable machine code or is suitable for processing to produce executable machine code.

Object Language

The binary language into which a source program is translated. The computer can understand the programmer's instructions only after they have been converted into object language. Synonymous with Object Code.

Object Program

A fully compiled or assembled program that is ready to be loaded into the computer. Contrast with Source Program.

Objective Program

A program output from a compiler, usually in machine language, ready for execution.

Occurrence

A single appearance of a data item or other "grouping" of data within a larger collection of data such as a file or document. Each appearance is considered as an occurrence of that data item.
For example, each time a particular character string appears in a document or file (for example, "Smith"), this is an occurrence of the character string "Smith".

Occurrence Coding Method

A method for coding linear and pointal types of data into grid cell data bases. A line or point is assigned to a cell based on whether the line passes through (occurs in) or is inside the cell.

Octal

Pertaining to a characteristic or property involving a selection, choice, or condition in which there are eight possibilities; also a number representation system with a radii of eight. An octal can also be a number system with 3-bit patterns representing the symbols 0 through 7. Two octal digits conveniently represent one six-bit character, the standard for data representation prior to the 8-bit byte, which is more conveniently represented by hexadecimal notation.

Off-line

Peripheral equipment, devices, or processing not under direct control of a central processing unit (CPU).

Off-line Processing

Transmission of information between a computer and a peripheral unit before or after, but not during, processing, in contrast to on-line processing; see also On-line Processing.

Off-site Storage

The storage of computer tapes, disks, or supplies in a secure building or area separated from the computer facility.

Offer

(1)   A proposal either received from the private sector/other governmental subdivision, or tendered by the BLM to the private sector/governmental subdivision, to exchange public land/resources for other public or private land/resources.

(2)   A proposal in response to a Request for Proposal or Invitation for Bids.

Offeror

The firm or individual responding to an offer.

Office Automation (OA)

The concept of automating or electronically assisting standard office functions, including office mail, scheduling, and word processing.

Office Information System(s) (OIS)

A particular family of computers made by Wang Labs, Inc. These systems were introduced in the early 1970's and targeted at the word processing market. They are still used today in many offices. Sizes range from OIS-40 (single user, low-end PC) to an OIS-145 (supports up to 24 concurrent workstations plus printers).

Office of Procurement Policy

A part of OMB concerned with procurement policy problems, and the site of the Federal Acquisition Institute.

Oil and Gas Lease Status (OGLS)

A small system used to check the processing backlog of applications concerning oil and gas leases.

On-line

(1)   Peripheral equipment or devices in direct communication with a central processing unit (CPU); also, processing directly under the control of the CPU.

(2)   A computer access mode where machine processing is readily accessible using an immediate access input device such as a terminal. On-line access is distinguished from batch access where a series of computer operations are performed independent of the user requesting each individual command. On-line access is often referred to as interactive. Another use of the term on-line describes a computer that is ready for any processing.

On-line Processing

Transmission of information between a computer and a terminal or display device while processing is occurring, in contrast to off-line processing. See also Off-line Processing.

On-line Recordation and Case Access (ORCA)

An independent system that parallels most of the functions of the BLM Service Center-based system known as Case Recordation (CR) and that uses as its source program a modified subset of Case Recordation's. ORCA's one, unique function is called Random Walk, which enables the user to browse through the data base. ORCA operates on State Office Level-6 computers and is compatible with the Service Center mainframe's Case Recordation System. Nightly updates are sent from the Level-6 computers to the Service Center DPS8/70 mainframe computer so that the multiple State Office data bases and Service Center Case Recordation data base are synchronized. ORCA originally decoded as ORegon Case Access System, and originated as an Oregon State Office subprogram to Case Recordation.

On-line System

Characterized by direct interface between application programs and terminals for data entry and output; terminals have direct access to the computer and data stored by the computer. Processing directly is under the control of the central processing unit All interactive systems operate on-line.

One-to-Many

The ability of an information system to directly relate a single data record with many other data records.

Open System Interconnection (OSI) Reference Model

A seven-layered architecture for communication drawn up by ISO/TC97/SC16.

The concept of the "open" communication system is one in which a user may communicate with another user without being constrained by the equipment of a particular manufacturer. The OSI Reference Model has seven layers: physical, data link, network, transport, session, presentation, and application.

The architecture that a model like the OSI Reference Model presents is necessary because of the complex nature of computer networks. The organization of a network into distinct layers allows each layer to be assigned a different task, but the basic task is essentially the transfer of information to the next layer above. The OSI Reference Model furnishes the basis for defining communication standards but makes no attempt to actually specify the services and protocols.

Operand

(1)   An entity (piece of data) on which an operation is performed.

(2)   That which is operated upon. An operand is usually identified by the address part of an instruction.

Operating System (OS)

(1)   Software that controls the execution of programs. An operating system may provide services such as resource allocation scheduling, input/output control, and data management. Although operating systems are predominantly software, partial or complete hardware implementations are possible. An operating system provides support from a single source rather than forcing each program to be concerned with controlling hardware.

(2)   A collection of programs by which a computer manages itself and its communication with external devices. An operating system is made up of a variety of programs, some very complex, that "support" the computer. In one sense, the operating system is the computer's "interface" to the outside world. Human communications with a computer are carried on through the operating system. Operating system programs are broadly broken down into three categories:

(a)   Control programs that usually go under the name of monitor or supervisor. These programs perform such functions as scheduling jobs and handling input and output.

(b)   Processing programs that include language translators and sort/merge routines.

(c)   Data management programs that provide access to data stored by the computer.

On some computers, particularly microcomputers, the operating system is stored

within the computer itself, generally in the form of read-only memory (ROM). Larger computers, which require more complex operating systems, will generally store most of their operating system programs on random-access storage devices, usually disks. Computers that use disk storage are generally described as having a disk operating system (DOS).

Operational

(1) Pertaining to the status given a software product once it has entered the operation and maintenance phase.

(2) The combination of devices, circuitry, or software which is currently in effect and performs a computer process.

Operational Reliability

The reliability of a system or software subsystem in its actual use environment. Operational reliability may differ considerably from reliability in the specified or test environment.

Operational Scenario

A set of interrelated sequential steps, addresses, documents, and user activities which provide a starting point and framework for the analysis of functional, informational, external interface, workload/performance, and user-system interface requirements.

Operations Concept

A conceptual strategy that provides an understanding of the logical flow of a future system and the operational environment within which the system will operate. The operations concept provides a common conceptual framework for all those involved in the life cycle of the future system; it reduces risk by providing sufficiently detailed criteria to focus system design.

Operations and Maintenance

For data management, includes all work to operate and maintain an existing system or application package, including minor technical changes or updates. Maintenance is the effort necessary to assure the continued viability of an operational system. Systems maintenance does not include creation of new computer output products, reports, or data files, or the restructuring of computer programs to improve operational efficiency. It does include minor program modifications necessary to implement BLM organizational changes and mandatory legal and regulatory changes. In information systems work, systems analysis and programming that do not fit the operation and maintenance definition are considered to be developmental work.

Operations and Maintenance Phase

The period of time in the software life cycle during which a software product is employed in its operational environment, monitored for satisfactory performance, and modified as necessary to correct problems or respond to changing requirements.

Optical Character Recognition (OCR)

(1)   The machine identification of printed characters through use of light-sensitive devices.

(2)   A technique used to enter data into a computer system. This information, normally in the form of specially formed numbers and letters, is read by a process called optical scanning. The device that does this, an optical character reader, converts each character into electrical pulses that can be understood by a computer. Systems to read handwritten characters also exist but have been less satisfactory.

Optical Scanner

(1)   A device that scans optically; scanners usually generate either an analog or digital signal.

(2)   A device that optically scans printed or written data and generates digital representations.

Optimize

To rearrange instructions or data in storage so that a minimum number of time-consuming jumps or transfers are required in running a program.

Options

Equipment or services that are not part of a guarantee such as optional quantities or renewal for additional periods of time.

ORACLE

A commercially available relational data base management system (RDBMS) software package based on the industry-standard Structured Query Language (SQL) for the storage, manipulation, retrieval, and presentation of data. ORACLE was used on the ALMRS prototype (Farmington Demonstration Project).

Orientation Grid

(1)   A network composed of two sets of parallel lines intersecting at right angles and forming squares or rectangles; it is used to establish a correct relationship in direction with reference to the points of the compass.

(2)   A ground or local unit grid used to orient a user to the data.

Original Survey

A survey that represents the first survey performed in an area.

Orthographic

Refers to the representation of related views of an object as if they were all geometrically projected upon a plane with a point of projection at infinity.

Orthographic Correction

The correction which is applied to preliminary elevations to correct for the error introduced by the fact that level surfaces at different elevations are not exactly parallel.

Orthophoto Map

A photomap prepared from an orthophotograph (see following definition) or a precisely controlled assembly of orthophotographs. It is generally published in standard map format.

Orthophotography

A photographic copy prepared from a perspective photograph in which the displacements of images due to tilt and relief have been removed.

Output

(1)   Anything that comes out of a computer to any other device, such as answers to mathematical problems; statistical, analytical, or accounting figures; and production schedules.

(2)   The data that a computer produces. Output can be sent to a monitor, a printer, a disk, or communication ports.

Output Device

Computer component designed for transferring data from the computer to some form of storage, e.g., printed forms, punched cards, or magnetic tapes or disks.

Overflow

That portion of the results of an operation that exceeds the capacity of the intended unit of storage.

Overhead Time

That portion of production time used for performing system initialization functions, dumping backup tapes, clearing and dumping memory, and handling other related functions.

Overlay

(1)   In a computer program, a segment that is not permanently maintained in internal storage.

(2)   Data layer, usually dealing with only one aspect of related information, which is used to supplement a data base. Overlays are registered to the base data by a common coordinate system.

(3)   The technique of repeatedly using the same block(s) of internal storage during different stages of a program or run. When one routine is no longer needed in storage, another routine can replace all or part of it.

(4)   The superimposition of one map or digital image over another of the same area to determine data combinations or intersections and unions.

Overlay Analysis

A procedure available in many spatial information management systems that allows two or more intelligent base maps to be integrated to produce a composite base map depicting information from all maps. Once overlaid, these derived base maps, called composite maps, can be used to analyze thematic maps depicting unique combinations of composite maps and areal cross-tabulation. A number of overlay procedures are offered in standard natural resource geographic information systems. Map overlay analysis is performed in these systems for both raster and vector forms of maps.

Overlay Mapping

A procedure common in government mapping whereby a specific base map is used to map all other features. In digital mapping, overlay mapping procedures are essential if the digital base maps to be generated by an agency are to be coordinated properly. The standard procedure in the development of most local government computer mapping systems is to develop a highly accurate base map and cadastral overlay upon which all additional features are to be mapped. If an agency does not employ overlay mapping procedures in the development of digital base maps, a large number of incompatibilities develop between map bases, most of which cannot be systematically resolved.

Overlay Statistics

(1)   The collection, organization, and interpretation of numerical data used in the process of stacking digital representations of various spatial data on

top of each other so that each position in the area covered can be analyzed in terms of these data. An example would be maps showing original land grants correlated with the maps showing present ownership.
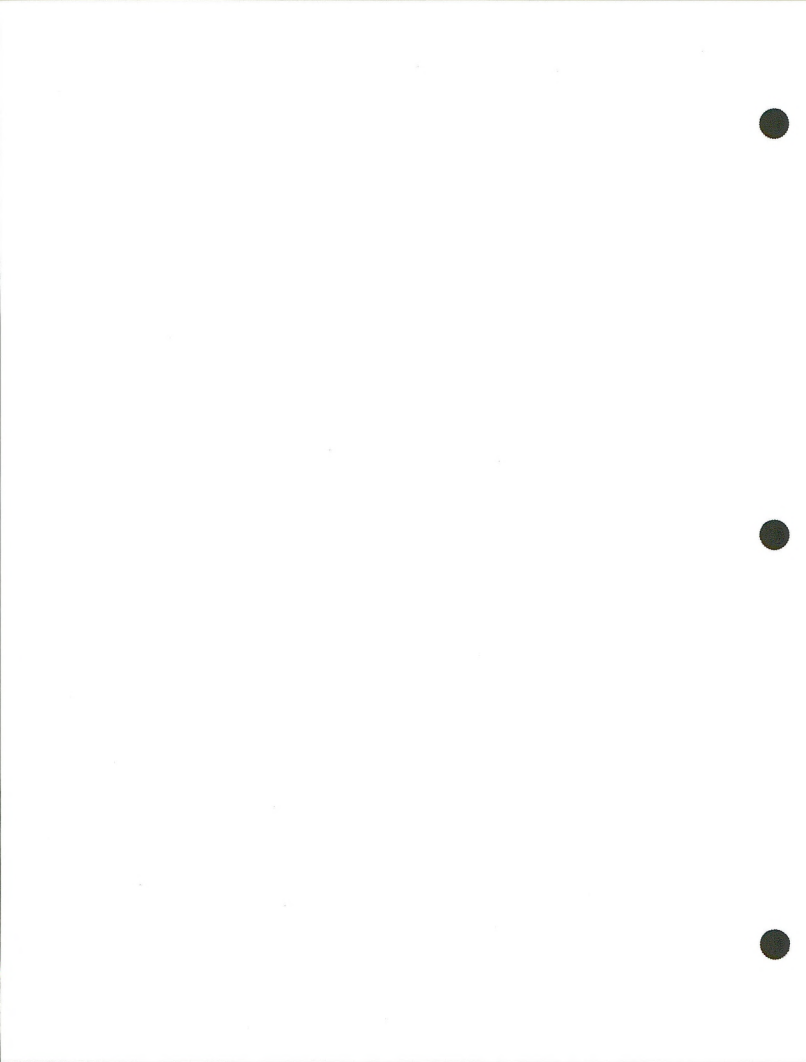
(2)   Values generated as a result of comparing coverages by intersection or union, etc.

Overplotting

Plotting one plot over another, keeping all the features of both intact.

Ownership

State, relation, or fact of being an owner; lawful claim or title; property; proprietorship; dominion. All ownership is by purchase or descent.

Pack

To compress data in a storage medium by taking advantage of known characteristics of the data in such a way that the original data can be recovered, e.g., to compress data in a storage medium by making use of bit or work locations that would otherwise go unused.

Packet Switching

A technique in which messages are broken into smaller units called packets. These may be individually addressed and routed through the network, possibly using several different routes. The receiving end node ascertains that all packets have been received and are in the proper sequence before forwarding the complete message to the addressee.

PAD

Packet assembler/disassembler; software in a packet switching system.

Pad

See Keypad.

Pad Character

A character inserted as fill when insufficient data characters are present to satisfy a length requirement.

Pagemaker

A page-oriented desktop publishing software package from Aldus Corporation designed for use on a microcomputer.

Paging (ADP)

The capability of a terminal, whose memory can hold more lines of data than can be displayed at one time, to page or refresh its screen from this held data without having to accept new data from the computer; also, the capability of a virtual memory system to bring portions of a program from an auxiliary storage device (disc) into main storage for execution. Main storage requirements are decreased through paging without increasing execution time.

Pan

The ability to scroll graphics smoothly in both vertical and horizontal directions so that all parts of the graphics can be viewed on the screen.

Paracentroid

A term used to describe a single coordinate location that lies inside a closed area. The most common use of paracentroids in digital mapping is to estimate a single centroid within each parcel of land in a computer cartographic data base. This paracentroid can then be used for spatial retrievals of land information, e.g. extraction of all records where the paracentroid coordinate lies within a radius of an arbitrary point or other paracentroid. Most paracentroids in parcel mapping systems are placed cosmetically for use in the production of thematic automated maps (plot graduated shapes at parcel centroids based on attribute data associated with the parcel).

Paradigm

A model or example of something.

Parallel Transmission

The process of sending several binary digits (bits) at one time over a number of parallel channels. Usually, all of the bits that represent a single character are sent together. The signal may be transferred over separate wires or multiplexed on a single wire. Synonymous with Parallel Data Transfer and Parallel Transfer.

Parameter

(1)   A variable that is given a constant value for a specified application and that may denote the application.

(2)   A variable that is used to pass values between program routines.

Parcel

A continuous area or volume of land on which unique, homogeneous interests or rights are recognized. As a three-dimensional division of the earth, the parcel includes superadjacent and subadjacent rights in addition to surface rights; hence a parcel is a volume, not just a surface. Continuity is the spatial definition of rights and homogeneity considers the nature of rights that will define the land encompassed by the parcel.

Parcel Attribute Data

A basic type of spatial data that assigns a series of attributes to a single parcel identifier. The three common types of parcel identifiers used in parcel attribute data bases are coordinate identifiers, hierarchical geocode identifiers, and grantor/grantee index identifiers. Coordinate identifiers assign a value to each parcel on the basis of a coordinate that falls along or inside a parcel. Hierarchical geocode identifiers, the most common type, assign an identifier as a function of the original survey areas within which a parcel lies. Common

elements of hierarchical geocode identifiers in Florida are section, township, range, subdivision, block, and lot. Grantor/grantee indices assign identifiers to parcels as a function of data obtained during the most recent transaction for the parcel. A large number of local government data bases developed in recent years are primarily parcel attribute systems. All county tax appraiser data bases are parcel attribute systems.

Parcel Identifier

A string of characters that are assigned to a single parcel of land. The key feature of parcel identifiers is that they must be unique. Three basic types of identifiers are used. The first consists of simple, random or systematic numbers assigned to parcels. The second uses identifiers that consist of a hierarchical set of geocodes that allow the user to partially locate the parcel. Examples of standard codes used in identifiers in Florida local governments are section, township, range, subdivision, block, and lot numbers. The third class of identifiers includes those based on a coordinate grid system. Coordinate grid systems allow for the precise placement of the location for a specific parcel using a single coordinate that makes up the identifier. Most coordinate-based parcel identification systems employed in the United States use either spherical coordinates (latitude and longitude) or State Plane coordinates.

Parity

Constant state or equal value. For example, character bit patterns are forced into parity (total number of one bits odd or even) by adding a one or zero bit as appropriate. Parity checking is one of the oldest checking techniques. For high speed transmission, it has largely been supplanted by cyclic redundancy checking, which does not use as many checking bits.

Parity Bit

A means of internal self-checking to detect erroneous transmission of data. A parity bit, also known as a check bit, can help determine if the number of 1 bits in a bit pattern is odd or even.

Password

(1) A protected word or string of characters that identifies or authenticates a user, a specific resource, or an access type. This security code ensures that a computer will be accessed only by authorized individuals.

(2) In systems with time sharing, a one-to-eight character symbol the user(s) may be required to supply at the time they log on the system. The password is confidential, as opposed to the user identification.

Patch

(1) A temporary electrical connection; also, the making of an improvised

modification, or the modifying of a routine in a rough or expedient way.

(2)   Small area of information spliced into a data base in order to update, complete, or densify the data content.

Patent

A grant of some privilege, property, or authority, made by the government to one or more individuals; also the instrument by which a state or government grants public lands to an individual. A land patent is written evidence of title issued by a government for the conveyance of some portion of the public domain.

Perennial

Term that applies to phenomena that occur continuously. The term is often applied to distinguish between rivers and streams that run continuously versus those that exist only during periods of peak precipitation or runoff.

Perfective Maintenance

In configuration management, a form of software support in which errors in, or enhancements to, software are identified and reported.

Performance

A measure of the ability of a computer system or subsystem to perform its functions; for example, response time, throughput, or number of transactions. See also Performance Requirement.

Performance Evaluation

The technical assessment of a system or system component to determine how effectively the operating objectives have been achieved.

Performance Requirement

A requirement that specifies a performance characteristic that a system or system component must possess; for example, speed, accuracy, or frequency.

Performance Specification

(1)   A specification that sets forth the performance requirements for a system or system component.

(2)   Synonymous with Requirements Specification.

Peripheral (Equipment)

A general term that implies a secondary, auxiliary, or support relationship or function in a computer system. For example, the printing of output data is considered to be peripheral to the computer's primary data processing assignment.

Peripheral Equipment

Machines auxiliary to the central processing unit, such as card readers, scanners, magnetic tape units, output printers, and disk storage devices.

Permission

Special function provided by the operating system that allows one user to access another user's file.

Permit

Document or certificate giving permission to do something.

Permit Inventory

A data base that maintains an on-line list of all permits applied for, approved, or rejected for an area. Most permit inventory systems support the simple data entry of information related to the permit. Many inventory systems provide progressive data entry procedures that support the periodic entry of related data as that information becomes available. Most permit application systems are simple inventory data bases; however, more comprehensive permit tracking systems are also being developed. The great majority of permit inventories in local governments are for building and related activities.

Permit Tracking

Procedures in local governments that follow the process of applying for and receiving permits. Almost all urban local governments support some form of permitting for use in code enforcement and fee collection. Permit tracking systems are those that support or simulate the process of applying for a particular permit, follow the evaluation procedures for the permit through each participating agency, execute all required procedures in the case of acceptance or rejection of the permit, and retain all code enforcement information that documents inspections. The majority of permit tracking systems developed to date in Florida are simply elaborate inventories that provide locations for the progressive storage of inventory data as a permit process is completed. True permit tracking systems provide a number of additional services, such as reminder/tickler functions that automatically produce memorandums related to the permit and responsibility control functions that inform various agencies involved in permit evaluation when their functions are required. Most permit tracking systems support fee calculation and collection functions that ultimately

become a major justification for the tracking system itself.

Personal Computer (PC)

A stand-alone device in the sense that it can operate without the need for additional computing power. PC's come in many sizes and are made by many manufacturers.

Perspective View

Three-dimensional representation generated with reference to a specific viewer location on or above the surface portrayed.

Phase Jitter

Random distortion of signal lengths that interferes with extraction of information by upsetting the timing.

Phase Modulation

See Modulation.

Photogeodesy

Methods developed in geodesy that support the precise measurement of earth locations from photographic bases. Using information on the location, elevation, and orientation of an aircraft, photogeodetic techniques allow individuals to estimate accurate two- or three-dimensional coordinates for particular identifiable locations on a map surface. Most photogeodetic techniques rely on sophisticated computer programs that adjust discrete photographic measurements into a predefined mathematical representation of the earth's spherical surface.

Photogrammetric Device

A device that supports viewing monographic and stereographic images of aerial photographs, interpreting data from these images, and recording and managing spatial data generated to represent the interpreted feature. These devices support functions that assign explicit horizontal and vertical coordinates to explicit points in a monographic (horizontal) or stereographic (horizontal and vertical) image and develop a mathematical model for all features viewed in the image. This model can then be used to assign coordinates to all features viewable in the image such as natural area boundaries and pointal locations. . Most photogrammetric devices have some interface with an automated mapping system that supports the storage, display, and alteration of interpreted data without using the photogrammetric device.

Photogrammetrically Digitized

Digitized from aerial photographs and geodetic control data by means of photogrammetric instruments, providing three-dimensional coordinates.

Photogrammetry

The science of making reliable measurements of location by using photographs. Most photogrammetric activities use some form of aerial photography. Modern photogrammetry uses extremely sophisticated analog and analytical stereoplotters. These devices use stereo photographic images for the collection of vertical (z) and horizontal (x,y) coordinates.

Photographic Base

A set of photography for an area that can serve as a base map because it is controlled by an earth coordinate system. Photographic bases differ from simple aerial photography in that procedures have been run against the photos to remove random and systematic distortion and conform the photo to a predefined projection of the earth's surface.

Photointerpretation

A field in which individuals are trained to recognize specific earth surface phenomena from different types of aerial photography. The method used for interpretation of a photo depends on the features that are being identified, the type of photography, the scale of the source photography, and the classification being used in the identification of features. Many developers of digital mapping data bases now merge photointerpretation and digitizing into a single operation. To answer this need, digitization interfaces have been established with traditional photogrammetric devices. A new generation of devices, analytical photoplotters, perform a number of additional functions.

Photoplotter

A device that provides a viewer for one or more photographic images and a series of measuring devices that estimate the relative location of a particular portion of the photograph.

Physical Data Structure

The data structure in which data are <u>physically</u> arranged on a storage medium, including various indexes and pointers. To a programmer, the data may appear to be arranged as a sequence of records, one after the other. On magnetic tape, this is the way such records are physically stored and accessed. However, on a random access storage medium such as a disk, records may be, and usually are, located out of sequence in different storage areas.

This physical arrangement allows available space to be used to the best

advantage. For example, when a record is added to a random access file, instead of placing it in its proper position between two other records, the record will be placed physically somewhere else. Various techniques, often involving data base management systems (DBMSs), keep track of the physical location of all records through the use of pointers and indexes.

The programmer uses a <u>logical</u> view of the data base when accessing or processing the data. He or she does not need to be concerned with the physical location of the data, but rather with how one record relates logically to another record. In less sophisticated data structures, such as sequential files, the physical data structure and the logical data structure are identical. Contrast with Logical Data Structure.

Physical Facilities

Includes statistical and management data about physical facilities managed by the Bureau, data about the Bureau road system and other roads considered in the District Transportation Plans, and data about buildings the Bureau builds and maintains. This may include facilities which are single-program in nature, e.g., wildlife viewing structures, campgrounds, or boat launches.

Physical Requirement

A requirement that specifies a physical characteristic that a system or system component must possess; for example, material, shape, size, or weight.

Picking

A function available in interactive graphics systems that allows a user to select a displayed graphic element by manipulating a device that positions a cursor over the target map feature. Picking functions are extremely useful when editing digital mapping data bases. Element copy, move, and delete procedures are depend on a picking function to support identification of the feature to be altered.

Picosecond

One-trillionth of a second; one-thousandth of a nanosecond.

Picture

A graphic data base that uses an existing graphic image converted to digital picture form using a variety of techniques. Each element of a picture data base is called a pixel (picture element). Pictures are then stored in a rectangular mesh of data that is organized into an image format. Graphic data bases made up of two-or three-dimensional objects must be converted to picture form for presentation on standard raster-based display devices. This picture processing can take place in either software or hardware, or both. Many modern graphics machines are now relegating the majority of these picture processing functions

to off-line devices so that the central processing unit of the computer can be freed from this time-consuming vector-to-raster conversion process.

Picture Processing

A subfield of image processing that works primarily on the enhancement of digitized pictures for a variety of applications. One of the most common uses of picture processing is to enhance or restructure a particular image to meet a certain need. Many modern films now perform picture enhancement procedures, particularly those that are produced through the use of computer animation. Another use of picture processing is in the field of sensory robotics, where pattern recognition is being used to allow robots to simulate seeing and picking on the basis of pictures.

Pilot

An original or test program, project, or device. In the case of a model, it is a model of a system that is not as complex as a complete model and that is used for program testing.

Pilot State

An area where a test process is conducted involving alternatives; iterative cycles evolving into a process that can be implemented in other areas to accomplish a given set of objectives. For the BLM the state of New Mexico will function as the Pilot State.

Pixel

Short for "picture element," the smallest discrete element which makes up an image. Simply put, a pixel is a single "dot" on a computer screen. Pixel is a term commonly used in display terminal technology to describe a single valid display location on a terminal screen. Many terminal devices allow users to manipulate individual picture elements on a display screen. The term is also used to refer to image-formatted grid cell data bases such as satellite imagery. A single data element (a string of reflectance values at a location) is referred to as a pixel (one row and one column). Related to remotely sensed data, a pixel is a data element having both spatial and spectral aspects that typically represent a small square or nearly square portion of the earth's surface. The spatial variable defines the apparent size of the resolution cell (i.e., the area on the ground represented by the data values), and the spectral variable defines the intensity of the spectral response for that cell in a particular channel.

PL/1

A high-level programming language developed by IBM in the mid-1960s and designed for use in a wide range of commercial and scientific computer applications. The purpose of PL/1 was to combine the best features of several other programming languages then in existence into a single language suitable

for a wide variety of procedure-oriented applications. This language has been widely used, particularly for larger IBM computers. PL/1 offers a wide range of functions and excellent string-handling features and is well suited for structured programming techniques. Subsets of PL/1 have been developed for microcomputers.

Plane Rectangular Coordinates

(1)   A system of coordinates in a horizontal plane used to describe the position of points with respect to an arbitrary origin. The origin is established by a pair of axes which intersect at right angles. The position of a point is determined by the perpendicular distances to these axes. Also called plane coordinates.

(2)   In cartography, coordinates represented on a plane that is usually a projection of the earth's surface onto a flattened cone or cylinder; the x and y values scaled along the rectangular axes are eastings and northings.

Plane Surveying

A branch of surveying in which the surface of the earth is considered a plane surface.

Planimetric Base Map

Map prepared from aerial photographs by photogrammetric methods as a guide or base for contouring.

Planimetric Data

Data which does not take relief information into account for establishing position.

Planimetric Map

A map which presents only the horizontal positions for the features represented; distinguished from a topographic map by the omission of relief in measurable form. Planimetric maps may show benchmarks and/or elevations of significant features.

Planimetric Mapping

Procedures that produce standard two-dimensional maps of an area. Planimetric maps are designed primarily to show the relative location of site-specific surface and subsurface earth features. Highway maps are examples of planimetric maps. There is a much greater emphasis on spatial accuracy with planimetric mapping than there is with thematic and statistical mapping

procedures.

Planning Area

A unit within which information is gathered and decisions are made. Most government agencies involved in planning activities use certain statically defined areas as the basis for decisionmaking. Most planning areas are depicted in data bases by assigning individual codes. This coding system is referred to as a geocoding system.

Plat

As used technically by BLM, a drawing which represents (a) the particular area included in a survey, such as a township, private land claim, or mining claim; (b) the lines surveyed, established, retraced, or resurveyed, showing the direction and length of each such line; (c) the relationship to the adjoining official surveys; (d) the boundaries, descriptions, and area of each parcel of land subdivided; and, (e) as nearly as practicable, a representation of the relief and improvements within the limits of the survey.

Plat Map

A term that refers to any map of relatively large scale. Most maps of individual subdivisions submitted for filing in county original records are called plat maps. The official base maps for a local government maintained by an agency (usually the Property Appraiser) are often referred to as plat maps.

Plot

(1)   The mechanical or mathematical process by which points or detail are located and positioned on a graph by means of geographic or grid coordinates.

(2)   To place survey data upon a map or plat.

(3)   In MOSS, a data display command that allows the user to display any active map.

(4)   In MAPS, is a data display command which generates a line drawing of an existing dichotomous, discrete, or continuous cell map by tracing boundaries between cells of different values.

Plotter

One of a family of computer output devices that is designed to produce graphic reports. The most common form of plotter is one that draws graphics with one or more pens. Another common plotting device is an impact printer that can generate single dot strokes. Combinations of these single point strokes can be used to generate pictures. Some plotting devices generate graphics by drawing

lines between random points (vector-based), while others draw pictures by plotting at specific locations of a regular lattice of locations (raster-based). The trend in graphics devices is toward high- resolution, raster-based devices because of speed in graphic production.

Plotter, Line

A mechanical plotter controlled by a computer, generally used for the recording of location or spatial information. Lines are drawn as a series of vectors, usually by pens. Scribing tools and photoheads are also available as accessories.

Plotter, Raster

A plotter which prints an array of tiny dots to draw the material being plotted. The device is usually electrostatic (xerox principle), although systems using ink jet technology are also available.

Plotter Interface

An electronic translator of the signals of two devices, such as a computer and a plotter, so that otherwise incompatible information can be transferred between them.

Point

(1)   A position on the earth whose location has been determined by surveying methods.

(2)   A zero-dimensional object that has a specific geometric location defined by a set of coordinates.

(3)   A level of spatial measurement referring to an object which has no dimension. Examples include wells, weather stations, and navigational lights.

Point Data

(1)   Data consisting of single, distinct x,y coordinates or single cells.

(2)   Information used for locating specific points on a reference system (e.g., the earth) whose location has been determined by a survey.

Point Identifier

A number (code) that uniquely identifies any cadastral survey corner within a given township and/or special survey. (Detailed instructions for these code numbers are included in BLM Data Element 5745.)

Point in Polygon

A specific location in a polygon represented by point coordinates, which are used to locate an area or areas on a map.

Point Symbology

The process of defining a specific location on a map or chart by use of a diagram, design, letter, or abbreviation that by convention, usage, or reference to a legend, is understood to represent a specific characteristic or object.

Point-To-Point

Two-point (only) communications.

Pointal Features

One of three basic classes of mapped features that may be represented in spatial data bases. The representation of points on data bases varies greatly depending on the type of spatial information used. Pointal map features depend on the scale of a map and the method used to depict a feature. The location of individual cities will appear as points on a map of the United States; however, these features will be closed areas on a 1:1 mile map of a county. Point attribute classes of spatial data are those most commonly used to maintain pointal data features, although points are often represented in linear and areal coordinate data bases as zero length lines.

Pointer

(1) An identifier that indicates the location of an item of data.

(2) A data item whose value is the location of another data item.

(3) A relationship between two records in a data base where one record retains data that can be interpreted into the location of a second data record. The use of pointer structures in data bases allows a record to be accessed almost instantaneously as a function of another data record. Both hierarchical and network models of data base management systems organize information by developing direct pointers between data records. The relationships between CAD graphics systems and associated attribute data bases is most often created by pointer data structures.

Polar Keying

Form of current loop where current flow direction establishes the two-level binary signaling.

Political Area

City council districts and school board zones, etc. Most political areas are represented in data bases by assigning individual codes. This coding system is referred to as a geocoding system.

Polling (ADP)

(1)   A technique in which each of the terminals sharing a communications line is periodically interrogated to determine whether it requires servicing.

(2)   A flexible, systematic, centrally controlled method in which a control device continually sends signals in sequence to connected terminals to determine if a terminal is waiting to transmit. This method ensures that no one terminal is kept waiting for a long period of time.

Polling (Telecommunications)

A method of controlling the sequence of terminal transmissions on a multipoint line by requiring terminals to wait until being allowed to transmit.

Polygon

(1)   A closed area that is described by a string of coordinates that represent the boundary of the area. Data structures that describe space using polygon units assign a series of attributes to the set of boundary coordinates that make up the polygon.

(2)   A plane figure consisting of three or more vertices (points) connected by line segments or sides.

Polygon Data

(1)   In MOSS, data defined by an enclosing line or lines. In MAPS, a group of contiguous cells containing identical values.

(2)   Information composed of point coordinates that are used to represent a specific feature (e.g., an area on a map).

Polygon Overlay

Procedures available in most turnkey natural resource geographic information systems that support the overlay of two or more intelligent automated mapping bases to produce a new overlay map retaining the attributes of all of the input map sources. The thematic map data base resulting from polygon overlay procedures is often used to depict specific areas meeting a number of spatial criteria. An example would be a map of developed areas where soils are unsuitable for development.

Polygon-to-Grid Routine

A common computer spatial data procedure. Polygon-to-grid algorithms convert areal polygon (or boundary) data to a grid cell format. Polygonal data are most commonly converted from coordinates to grid form for use in analytical procedures that require rectangular grid data bases. Computer graphics on raster-oriented plotting devices such as line printers, electrostatic plotters, graphics terminals, and image processing systems often require data in grid cell form. The most common method of converting coordinate data to grid cell forms simply calculates the centroids of rectangular grid rows. After sorting all intersections for a given row (or column) together, most routines use a version of the first-in, second-out property of closed areas to determine the makeup of a row of grid cells.

Polygonization

Process of connecting together linear feature information to form polygons.

Port

An access point through which data can enter or leave a data network; a connection point for a communication line on a CPU; a physical cable connection to an ADP component (e.g., computer, network processor, multiplexor, etc.).

Portability

The ease with which software can be transferred from one computer system or environment to another.

Positional Accuracy(ies)

(1)   A term used in evaluating the overall reliability of the positions of cartographic features relative to their true position, or to an established standard.

(2)   The degree of conformity with a standard location.

POSIX

The trademark name for a set of standards for the UNIX operating system developed by IEEE. Also known as IEEE 1003.1.

Precision

(1)   A measure of the ability to distinguish between nearly equal values; for example, four-place numerals are less precise than six-place numerals. However, a properly computed four-place numeral may be more accurate than an improperly computed six-place numeral.

(2)   The degree of discrimination with which a quantity is stated; for example, a three-digit numeral discriminates among 1,000 possibilities.

(3)   The extent to which a numeric quantity is precisely stated, measured by the length of the number. For example, the numbers 3.14 and 3.14159 may be used to represent the same value. However, the precision of the second number to five decimals is greater than the precision of the first value, which is only two decimals.

Predominant Coding

A method for coding attributes in areal grid cell data bases that assigns a value to a cell based on the attribute that makes up the majority of the cell. A number of relatively efficient methods are available for predominant cell coding. The most common method used is to evaluate a centermost coding procedure for a denser grid pattern and aggregate smaller rectangular grid cells into a single cell that is assigned to the value occurring most often.

Preliminary Design Review (PDR)

A review conducted for each configuration item or aggregate of configuration items to:

(a)   evaluate the progress, technical adequacy, and risk resolution (on a technical, cost, and schedule basis) of the selected design approach,

(b)   determine its compatibility with performance and engineering speciality requirements of the Hardware Configuration Item (HWCI) development specification,

(c)   evaluate the degree of definition and assess the technical risk associated with the selected manufacturing methods/processes, and

(d)   establish the existence and compatibility of the physical and functional interfaces among the configuration items and other items of equipment, facilities, computer software, and personnel.

For CSCIs, this review focuses on:

(a)   the evaluation of the progress, consistency, and technical adequacy of the selected top-level design and test approach,

(b)   the compatability between software requirements and preliminary design, and

(c)   the preliminary version of the operation and support documents.

Preprocessing

(1)   Transformation of raw data required to facilitate further cartographic processing.

(2)   In a remote sensing system, the processing of the data received from the sensor to a form acceptable by the data bank and subsequent processing functions; may also include geometric and radiometric calibration, enhancements, and other transformations.

Present Value

The concept of reducing the net effect of time-distributed costs when evaluating proposals.

Preventive Maintenance

Maintenance performed on hardware, usually according to a predetermined schedule.   Preventive maintenance is intended to prevent problems from developing.   Contrast with Corrective Maintenance.

Price

The bid or offered price from a vendor. (See FPR 1-3.807-2, FAR 15.8 and FAR 3.807). Not to be confused with cost or life cycle costs.

Price and Other Factors

The concept of making an award based upon a vendor's price plus other factors, such as delivery time, quality, conversion costs, present value, residual value, etc., all of which in a negotiated procurement may make a higher priced offer more attractive because of lower overall costs.

Price Reduction Clause

A clause common to GSA schedules that requires a lowering of the government price when a commercial price, upon which the government price is based, is lowered.   This may be negotiable; the application varies from schedule to schedule.

Primary Drainage Features

Those earth features that are important to the movement patterns of surface water when it flows from one area to another. Primary drainage features can be either natural (rivers, lakes, or ridges) or man-made (curbs and gutters, pipes, or ditches). Most modern local government drainage management systems provide methods for modeling both natural and man-made features; however, most of these local government systems tend to emphasize the man-made features. On the other hand, most drainage systems used by regional and

state government agencies emphasize natural drainage features.

Prime

A large manufacturer of super minicomputers and supporting software. Prime's products are sold to commercial customers for business, scientific, and engineering applications. Prime minicomputers are being used by BLM to perform GIS analysis at the State Office level.

PRIMIX

Guest UNIX operating system that runs under PRIMOS as a shell; the suboperating system of PRIMOS.

PRIMOS

Prime's proprietary operating system; the primary operating system for Prime hardware.

Principal Meridian

In cadastral survey, a line which runs north and south from the Initial Point of Survey. It is always paired with a baseline and is an integral part of the legal land description.

Principal Uses

As defined in FLPMA, principal uses are domestic livestock grazing, fish and wildlife development and utilization, mineral exploration and production, rights-of-way, outdoor recreation, and timber production.

PRINT

Command used by time sharing to print files as specified by the user.

Printout

See Display, Hard Copy

Priority

A means of determining the sequence in which tasks are to be accomplished.

Process Control

Method whereby a computer program is used to control a series of procedures required to complete a task, for example, following and maintaining the even flow of an automated assembly line. Process control and robotics are almost always used in combination.

Production Accounting and Auditing System (PAAS)

A Mineral Management Service (MMS) system consisting of an integrated set of manual and automated processes for mineral production reporting, accounting, lease management, and auditing. PAAS provides an automated check between sale volumes and quantities reported by operators and payors to assure proper royalties have been received for energy and mineral resources removed from Federal and Indian lands. It also provides information regarding operations on the Federal and Indian leases to agencies for lease management purposes.

Product Generation

Producing a desired product through the application of one or more operations; usually will be a hardcopy product.

Program

(1)   A computer program.

(2)   A schedule or plan that specifies actions to be taken.

(3)   To design, write, and test computer programs.

(4)   A series of instructions or statements, in a form acceptable to a computer, designed to produce a specific result from the computer.

Programmer

A person mainly involved in designing, writing, and testing computer programs.

Programming Language

A language used to prepare computer programs.

Project Plan

A management document for a project. A project plan typically describes the work to be done, resources required, methods to be used, configuration management and quality assurance procedures to be followed, schedules to be met, and project organization, among other factors.

Projection

In mapping, a method of depicting a portion of the spherical earth on a flat surface. A variety of different techniques have been devised to perform this function. The projection chosen for a particular map will be based on the characteristics that a cartographer would like depicted on a map. Almost all

projections are based on a mathematical transformation between spherical coordinates and rectangular coordinates. Since most projections have a mathematical basis, modern computer cartographic systems usually provide software designed to convert from one projection to another.

Projection Change

Procedure to transfer features from one projection surface to the corresponding position on another projection surface by using graphical or analytical methods.

Projection Package

A software system that performs conversions between spherical coordinate systems (latitude and longitude) and a specific rectangular coordinate system that reflects a particular projection. Most projection packages provide inversion routines that convert from a specific rectangular projection to latitude and longitude; thus most packages support conversions between two mathematical projections.

Projection Transformation

Procedures that convert from one mathematically based coordinate projection system to another. Most projection transformation procedures work by converting one set of coordinates to spherical coordinates and then follow by converting spherical coordinates to the target projection.

Prompt

(1)   A message informing the user that a system is ready for the next command message or other user action.

(2)   A specific character that appears on the terminal when the program is soliciting a line of input from the user.

Prompt Payment Discount (PPD)

A scheme peculiar to the U.S. government which requires a lowering of proposal costs when a vendor offers a PPD within the terms of the RFP/IFB. (See SF 1424, SF 33 Para. 13, FPR 1-2.407-3, FAR 52.232-8. FAR 2.407-3 and appropriate agency forms and regulations.)

Proposal

Same as Offer.

Proprietary Format

A requirement of many vendor software packages that inhibits or prohibits a person from altering or transferring data files created by the packages. In

many spatial data handling systems, proprietary formats have been a problem in the past. Recently, however, most vendors have begun to offer users options for data transfer from one system to another. In most cases, however, the proprietary data format on one system is useless to another.

Proprietary Software

Software that has been developed by a commercial vendor and is sold in the open market. Only that vendor can make modifications or improvements to the software and it cannot be duplicated legally. Examples include Lotus 1-2-3, WordPerfect 5.0, and dBase IV.

Protocol

(1)   A set of conventions or rules that govern the interactions of processes or applications within a computer system or network.

(2)   A set of rules that govern the operation of functional units to achieve communication.

(3)   A set of procedures for establishing and controlling transmissions. Telecommunications examples include bisync and SDLC.

Prototype

A model, or a portion of a computer system that is designed to function as the actual system. A prototype is generally subject to considerable review and modification before it becomes the actual, functioning system.

Proximal Mapping

A mapping procedure that assigns values to each mapped location based on the value of the closest of a discrete set of points. These maps are therefore referred to as nearest neighbor maps. For certain classes of statistical data, proximal maps are superior to contour mapping procedures. The boundaries formed in a nearest neighbor map are composed of intersecting perpendicular bisectors formed by a point and all of its adjacent points. Maps composed of these bisectors are known as Thessian polygon maps. Almost all statistical mapping software packages offer proximal mapping options.

Proximity

Measure of closeness to a specified point as defined by a user .

Proximity Analysis

Analytical technique used to determine the relationship between a selected point and its neighbors.

Proximity Search

Analytical procedure to identify occurrences of predefined data elements in the neighborhood of a selected point.

Prudent Man Rule

A rule used in determining whether or not a mineral deposit is "valuable" under the meaning of the law. Discovered deposits must be of such a character that a person of ordinary prudence would be justified in the expenditure of his or her labor and means, with a reasonable prospect of success, in developing a paying mine.

Pseudo Code

A combination of programming language and natural language used for computer program design.

Public Domain

(1)   Any and all land ceded to the Federal Government by the Original States and other lands that were later obtained by treaty, purchase, or cession. Public domain lands can be disposed of only under the authority of Congress.

(2)   Refers to software that is freely available to the public at no cost.

Public Involvement

The opportunity for participation by affected citizens in rulemaking, decisionmaking, and planning with respect to the public lands, (a) including public meetings or hearings held at locations near the affected lands, (b) advisory mechanisms, or (c) any other procedures that may be necessary to provide public comment in a particular instance.

Public Land

Any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except:

(1)   lands located on the Outer Continental Shelf; and

(2)   lands held for the benefit of Indians, Aleuts, and Eskimos.

Public Land Statistics (PLS)

A yearly BLM statistical publication consisting of tables and narratives that detail

public land and commodities held, sold, or leased and the revenues earned in a given fiscal year. The book reports on numerous Bureau resources and programs, e.g., range management, wildlife habitat, cultural resources, energy and mineral resources, etc. Much of the data published is taken directly from Bureau-administered data bases.

Public Land Survey System Coordinate Computation System (PCCS)

Software developed by BLM that:

a. computes the geographic coordinates of Public Land Survey System (PLSS) corners using official cadastral survey record data;

b. provides an estimate of the approximate relative position coordinate dependability of the computed coordinates;

c. stores survey measurement data and computed coordinates in a data base that can be easily accessed; and

d. provides data format flexibility to facilitate data transfer to other systems requiring computed coordinates.

Public Land Survey System (PLSS)

The original survey system for all states in the United States excluding the original thirteen colonies, Hawaii, and Texas. This system specified that a rectangular land survey be performed based on one or more arbitrary origins in the state. The north/south line of the origin was a meridian of longitude, while the east/west line was to be perpendicular to the meridian. The state was then divided into six-mile squares (36 square miles) called townships. Within townships, areas were divided into one-mile-square areas called sections. Subdivisions of sections then become the basis for legal descriptions of land. These subdivisions of sections were called aliquot parts, e.g., the northeast 1/4 or the northwest 1/4 of the southwest 1/4.

Public Users

Any non-Federal entity, including private citizens.

Pulse

A signal that can be wholly described by a constant amplitude and a duration of time. This signal form is typically used internally by computers, terminals, and other business machines and is also used by some communications facilities.

Pulse Modulation

Transmission of information by varying the basic characteristics of a sequence

of pulses: width (duration), amplitude, phase, and number.

Quad Tree

(1)   A data structure for thematic information in a raster data base that seeks to minimize data storage.

(2)   A method of subdividing square (or perhaps rectangular) areas into four equal-sized parts. The subdivision for parts that are not homogeneous is repeated until subparts are homogeneous.

Quad Corner Areas

User-defined measure relating to the portion of a quadrangle mapping sheet where it joins two or more other sheets.

Quadrangle

A four-sided figure, bounded by parallels of latitude and meridians of longitude, used as an area unit in mapping. The dimensions are not necessarily the same in both directions.

Quality Assurance

(1)   A planned and systematic sequence of all actions necessary to provide adequate confidence that an item or product conforms to established technical requirements.

(2)   The procedures involved with maintaining the accuracy and integrity of a computer system as well as the accuracy of the data being processed by the system. The term applies generally to processes beyond the scope of information processing such as manufacturing operations.

Quality Control

(1)   The mechanism used to ensure that completed products meet requirements by measuring the products against quality standards.

(2)   Process of ensuring that the quality of data or operations are in keeping with standards set for the system.

Query

A computer command that asks a question of a particular data base. Most data base systems support a family of commands that, if properly syntaxed, can be used to perform queries on data bases. These command languages are often called query languages.

Queue

(1)   A list that is accessed in a first-in, first-out manner.

(2)   An area containing, or capable of containing, a group of similar items awaiting processing by some facility.

Queued Telecommunications Access Method (QTAM)

An older IBM communications I/O control routine that has been largely replaced by QTCAM.

Quick Look Plot

A "draft" plot done very quickly that may not adhere to the positional accuracy standards or symbolization of the final plot.

Quit Claim Deed

A deed of conveyance operating by way of release; that is, intended to pass title, interest, or claim which the grantor may have in the premises but not professing that such title is valid, nor containing any warranty or covenants for title.

QWERTY (keyboard)

The standard layout for typewriter and computer keyboards. Designed in the 1800's to slow the typing speed down to the capabilities of the then-available technology. Named for the first six characters of the first row of alphabetic characters.

Radiometric Calibration

Refers to an image processing procedure for determining quantitatively how a multispectral image appears to a sensor compared with the actual input values it is measuring.

Radiometric Transformations

Adjustments made in data to convert raw multispectral data to a radiometrically consistent set of measurements; may be used to compensate for sensor system irregularities or environmental variations. Destriping is a technique for correction of radiometric distortion.

Radius

A line segment that joins the center of a regular polygon to any of its vertices.

Random Access

See Direct Access.

Random Access Memory (RAM)

Computer memory for the temporary storage of information, instructions, or data. RAM is generally lost if a power surge or power failure occurs.

Random Number Generator

A specific routine or hardware designed to produce a random number or a series of random numbers according to specified limitations.

Random Walk

(1) In "operations research," a variance-reducing method of problem analysis in which experimentation with probabilistic variables is traced to determine results of a significant nature. Uninteresting walks add only to the variance of the process and thus contribute nothing. An interesting walk tends to lead toward a predictive solution.

(2) An interactive COBOL program used for examining and printing records stored on the ORCA file system. It is designed for use by the general public in the public room.

Range

A system of coordinates used to identify specific townships in a Public Land Survey state. The range coordinates represent the number of townships east or west of the principal meridian.

Ranged Address

A method for compacting the coding of addresses by assigning a range of site address numbers to a single data record. Most address range systems distinguish between the street sides that a range falls into by using the even/odd distinction made by many communities when assigning addresses to a particular side of the street.

Ranged Site Address

Address data bases that describe a range of unique site addresses along a particular street or street side in a single record.

Raster

(1)   Conceptually, the smallest individual unit. The term is applied to many computer applications, the most common being terminal technology. Most cathode ray tube (CRT) terminal devices are called raster terminals because they produce a display based on the color displayed in an array of discrete screen locations, referred to as rasters. The quality of the screen image is dependent on the number of rasters in the vertical (rows) and horizontal (columns) directions. Raster is also a term used in spatial data bases. Grid cell data bases, particularly those stored in image format, are called raster-based. The term applies since grid cell data bases represent a mesh of values depicting phenomena at discrete, invisible locations. Also see Cell.

(2)   Pattern of horizontal, parallel scan lines constituting the image on a CRT screen, on which each scan line consists of segments varying in intensity.

Raster-Based Maps

Maps created by assigning values to each addressable location in a theoretical grid, based on phenomena occurring inside each individual grid cell or raster. Raster-based maps are produced by assigning variables to each element in a mesh, these state variables being interpretable by a valid display device as white, black, or a particular color. The most common raster-based graphic is the line printer map where a raster is represented by one or a group of overstrike characters. Electrostatic plotters assign an "on" (black) or "off" (white) value to each dot on a mapping surface. Color CRT graphics terminals assign a color to each dot on a mapping surface. A major difficulty in working with raster graphics devices is the vector nature of most plotting software. Vector/stroke plot files must be converted to device-dependent raster files useful to a particular raster display device. The current line of raster-based graphics devices feature hardware that performs some of the functions related to this vector to raster conversion. Grid cell data structures are the favored method for storing information that is to be mapped on raster-based graphics systems.

Raster Data

Cell data arranged in a regular grid pattern in which each unit (or cell) in the grid is assigned an identifying value based on its characteristics.

Raster Processing

See Cell Processing.

Raster Refresh Display

Cathode ray tube on which the image is displayed in raster format and which must be refreshed by a new pass of the electron beam about 30 or more times a second.

Raster Scan

The method used to display an image on a cathode ray tube (CRT). The raster scan technique involves an electronic beam being directed at the surface of the CRT once for each cycle of the electric current, normally 50-60 times each second. Binary signals from the computer turn the beam on and off at predefined points, producing the image desired.

Raster-to-Vector Conversion

A procedure that converts grid cell forms of data (raster) to forms that are useful to vector-based automated mapping systems and turnkey geographic information systems. The most common use of raster to vector routines centers on the conversion of classified digital remotely sensed data (classified LANDSAT data) to vector forms that are useful in traditional mapping procedures. Distinctions must be made between raster to vector routines that simply generate lines between areas of varied attribute (mapping conversion) and those that produce intelligent, topological or closed polygon formatted vector data bases.

Rasterize

(1)   To convert data from vector format to cell format.

(2)   In MAPS, a data description command that converts information from a point, line, or polygon vector map into cell format to create a new dichotomous, discrete, or continuous map.

READ

(1)   A process that involves a computer reading information from a disk.

(2)   A command verb used under time sharing to read a data file belonging to another user; special permission.

Read-Write Head

A magnetic mechanism that is an internal part of the disk drive and that actually puts data onto (writes) or takes data off of (reads) a diskette or disk.

Real Time

(1)   Pertaining to the processing of data by a computer in connection with another process outside the computer according to time requirements imposed by the outside process. This term is also used to describe systems operating in a conversational mode and processes that can be influenced by human intervention while they are in progress.

(2)   Pertaining to the actual time during which a physical process transpires; for example, the performance of a computation during the actual time that the related physical process transpires so that results of the computation can be used in guiding the physical process.

(3)   In solving a problem, a speed sufficient to give an answer within the actual time the problem must be solved. Real time can also mean processing now, without delay. It is used by engineers to indicate processing in time to control an event and by data processing personnel to indicate processing transactions as they occur.

Real-Time Processing

A process whereby the computer is interacting instantaneously and continuously, as in monitoring a heartbeat or a chemical experiment.

Recall

A procedure which restores a previous entry.

Receive-Only (RO)

A printer terminal without a keyboard for data entry.

Reclassify

(1)   A procedure to change the classification of existing data.

(2)   In GIS, a type of data analysis entailing reassignment of subjects and/or values to existing spatial data.

Record(s)

(1)   A logically complete information group.

(2)   A physical or logical break in an information set.   File management
        software supplies a method for breaking information into partitions,
        making the retrieval of individual items possible.   Many methods of
        partitioning information are used, the three most common being fixed
        length records, trailing character records, and leading character count
        records. Many operating systems offer a hierarchy of information storage
        structures to be used in partitioning data sets. Most also allow for the
        addressing of data sets by name. In most applications a distinction is
        made between logical and physical records. A logical record is a single,
        meaningful unit of data. This logical record may be made up of one or
        more physical records on a device. It is also possible that more than
        one logical record can make up a physical record.

(3)   Groupings of related data items handled by a computer system as a
        single unit of data.   Each data item in the record is called a field.
        Records can contain any number of fields.   In some types of data
        structures, each record must be of the same length (fixed-length record),
        while in other data structures, variable-length records are permitted.   A
        file contains any number of records. Each appearance of a record within
        a file or other data structure is termed an occurrence of the record. In
        some data structures, other terminology is used. In a hierarchical file
        structure (tree structure), a record is made up of (segments), and each
        segment may contain a number of fields. In a relational data structure,
        a tuple corresponds to a record.

(4)   All public documents, including plats and maps, which define land
        description, ownership, and title.

(5)   A collection of related items of data, that is treated as a unit, for example,
        one line of an invoice may form a record, and a complete set of such
        records may form a file.

Record Layout

The arrangement and structure of data in a record, including the sequence and
size of its components.

Record Length

A measure of the size of a record, usually specified in units such as words or
characters.

Recovery Procedures

The actions necessary to restore a computer system's computational capability
and the data that were being acted upon, to where they were before the system
failed.

Rectangular Coordinate Systems

A method for depicting locations based on a rectangular lattice of coordinates. In automated mapping applications, latitude and longitude are not rectangular and therefore cannot be used easily with many analytical geometric procedures. To employ these functions, it is necessary to convert these spherical coordinates to a rectangular basis. Many such conversion systems are available, the two most common for high-resolution mapping applications being the Universal Transverse Mercator (UTM) system and the State Plane Coordinate system. These are based on algebraic algorithms to convert spherical coordinates to rectangular coordinates. See also Cartesian Coordinates.

Rectangular Grid

The most common type of grid cell data base that organizes space into a mesh of contiguous rectangles. The location of each cell is referred to as a row and column address. Most rectangular grids are based on a particular mathematical projection, the edges of each row and column representing lines of continuous X and Y values in the rectangular coordinate system. A major power of rectangular grids is the ease with which grids that use a common origin, projection, and cell size can be overlaid. A variety of standard geographic information system products available on the market work exclusively with regular grid cell data bases. Most of these packages allow grid cell maps to be overlaid, analyzed, and displayed. Most also provide software to convert other types of geographic data bases to compatible grid cell forms and methods to resample data from an incompatible grid, making it useful for comparison with other data bases.

Rectangular Surveys

A system of surveys in which an area is divided by a base line intersected at right angles by a principal meridian, the intersection termed the initial point, from which the partitions are subdivided into equal-size townships each containing 36 sections of land.

Rectification

Process of projecting a tilted or oblique image onto a horizontal reference plane.

Recursive Routine

A routine that may be used as a subroutine of itself, calling itself directly or being called by another subroutine, one that it itself has called. The use of a recursive routine usually requires the keeping of records that contain the status of its unfinished uses in, for example, a pull-down menu.

Redistricting

A procedure where distinct areas are grouped into larger areas based on a series of criteria. The most common example of redistricting is in political applications where new legislative or local council districts are established based on data available for a discrete set of areas. In local redistricting applications, demographic data are collected for a discrete set of areas in a community (individual blocks). These discrete areas are then grouped into a specific number of larger areas based on a number of criteria such as similarity in population. Most redistricting algorithms provide optimization routines that select a best set of districts. Data bases required for redistricting functions include information on the spatial relationships between statistical areas. One common relationship that must be established is contiguity (areas that touch other areas).

Reduction

The process of organizing "raw" data, as received by data collection procedures, into more useful and meaningful forms.

Redundancy

(1)   The inclusion of duplicate or alternate system elements to improve operational reliability by ensuring continued operation if a primary element fails.

(2)   Extra information or equipment. In transmission error control, redundant information (parity or cyclic) is added to the basic information to give a crosscheck for error detection. For systems, redundant equipment provides some measure of backup in case of component failure.

Reference Frame

Term often used to describe a coordinate system.

Reformat

A procedure to change a data format to one usable by a system.

Registration

(1)   A procedure in which two computer maps are overlaid in an effort to determine obvious discrepancies between common boundaries on the maps. Most map registration and resolution procedures must be done manually; however, more sophisticated procedures are beginning to surface that support a semiautomatic correction of digital map discrepancies.

(2)   For remotely sensed data, the process of geometrically aligning two or

more sets of image data such that resolution cells for a single ground area can be digitally or visually superimposed. Data being registered may be of the same type or from very different kinds of sensors and may have been collected at different times.

Regression Test

(1)   Selective retesting to detect faults introduced during modifications of a system or system component, to verify that modifications have not caused unintended adverse effects, or to verify that a modified system or system component still meets its specified requirements.

(2)   A combination of several or all of the following tests: black-box, white-box, unit, integration, system, and acceptance to assure that a newly integrated module has not introduced new errors. The regression test is especially important during the software maintenance phase.

Regular Grid

A grid cell data base in which each data base element represents an area symmetric in size and shape with respect to all other data base elements. Examples of regular grid cell data bases are rectangular or square grids and hexagonal grids.

Relation

A table of data in a relational data base management product. Relational data bases require the organization of information. Individual tables are made up of rows (records) and columns (variables, attributes). A relation, often termed a "flat file", becomes the basic storage unit for all information in a data base. All relational operators in these data base packages are designed to construct new relations from one or more other relations. Examples of relational operators are projections, joins, and subtractions.

Relational Algebra

A series of data base functions available in relational data systems that support the composition of new relations from existing relations. These relational operators are treated much like numeric operators in that the functions have a series of mathematical "arguments," or specific relations, and generate a mathematical "product," or new relation. Common relational operators are joins, subtractions (differences), and projections.

Relational Data Base

A data base in which some data items in one type of record refer to records of a different type.

Relational Data Base Management System (RDBMS)

(1)   A programming system that is used to develop or support the normal translation functions of any of machine, procedural, or problem-oriented language.

(2)   A collection of computer programs that, in aggregate, aid in the operation and checkout of a relational data base.

(3)   The combination of the skills, techniques, and equipment to operate and maintain a system.

Relational Identifier

An attribute in a data record that can be used to integrate information in the record with data on other records. In a relational data base environment, relational identifiers are used as control variables when performing operations such as joins and projections. When a relational operator represents spatial identifiers, those identifiers can be used to perform spatial retrievals. Key relational identifiers in local government include site address and parcel identifiers (both spatial identifiers).

Relational Operators

Logical symbols used to compare two values. The result of the comparison is a "true" or "false" condition. Some common relational operators are "equal to," "not equal to," "greater than," and "less than."

Relative Coordinates

A coordinate system used to describe an earth object that is not based on any absolute coordinate system such as the spherical coordinate system (latitude and longitude). Relative coordinates are often used when an automated mapping data base is plotted. Plotter coordinates are often redefined into an arbitrary relative coordinate system (inches relative to lower left corner of map, for example).

Relative Descriptions

A method of locating points in a spatial data base using relative referencing methods. The most common relative descriptions method is the legal description, where each point in a data base is described relative to the previous point in the description. These legal descriptions, also known as traverses, can be used to generate absolute coordinate estimates using computer software packages such as coordinate geometry.

Relative Distance

(1)   Distance relative to a specified reference point, usually one in motion.

(2)   A length with respect to other lengths.

RELEASE

A command verb which tells the system to delete a certain file.

Reliability

(1)   The ability of an item to perform a required function under stated
       conditions for a stated period of time.

(2)   In spatial data base development, a term that is used to describe the
       overall spatial integrity of a data base. Quantitative measures of data base
       reliability often describe the average location error for each point. This
       is expressed as the average number of feet (or meters, miles, etc.)
       between a point on the data base and the actual earth feature
       represented by the point. This method of measuring map reliability is
       often referred to as the Circular Map Accuracy estimation.

Reminder Function

A procedure in most process tracking systems that reminds users when a
specific function in process is to be completed; also known as a tickler
function. The most common form of reminder function is a printed letter or
memorandum that is designed to inform participants of upcoming requirements.

Remote

A device that is integrated with a particular computer system but is placed in
a location that is relatively far away from the site where the central processing
unit is housed. Remote is a term that is most often applied to peripheral
devices such as terminals and printers. In some systems, remote devices can
interface with each other across great distances. Remote devices are integrated
with a central site system by using either common carrier or direct telephone
lines.

Remote Access

Communication with a data processing facility through a data link.

Remote Concentration

A feature of the Level-6 RNP-6 operating system software which provides the
capability (through logical switching) to simultaneously connect and service up
to 128 terminals over a single communication link to the DPS-8 computer.

Remote Job Entry (RJE)

Submission of job control statements and data from a remote terminal, causing the jobs to be scheduled and executed as though encountered in the input stream. See Batch Processing.

Remote Sensing

(1)   The acquisition of information without physical contact; includes visual, photographic, and electronic data-gathering methods.

(2)   A field of study that develops methods to detect earth phenomena from remote locations. The most common form of remote sensing is aerial photography combined with methods used to determine earth measurements from photographs (photogrammetry). More recent developments in remote sensing have centered on the development of passive (reflectance) and active (radar) scanning devices that measure earth surface phenomena at discrete locations and report these measurements for use in applications such as land cover assessment. Digital remotely sensed data bases are most often referred to as image data sets.

Remote Site

A parcel of ground set apart for a specific use but distantly removed from other parcels.

Remote Terminal

An input/output control unit and one or more input/output devices attached to a system through a transmission control unit.

Renewable Resources

Resources that are capable of being replaced by natural ecological cycles or sound management practices.

Rental Credits

The practice of a vendor allowing a portion or all of a rental payment to apply to a purchase if purchase conversion occurs later.

Repeatability

(1)   Ability to consistently obtain the same results when conducting the same operation.

(2)   The ability of a device to replicate an identical operation from one sampling period to another. In digitizing devices, for example, the

repeatability of a device is the distance between the same digitized location from one data entry operation (cursor button push) to another. Repeatability of digitizing devices can vary from .05 to .008 inch on most standard models. The issue of repeatability is extremely important when considering some of the newer automated data capture devices such as video digitizers. These devices often have extremely poor repeatability.

REPLACE

(1)   Procedure to replace all existing occurrences of a specified data element with a new data element.

(2)   Command verb used in Text Editor to replace certain lines or strings of data in an existing file.

Report Program Generator (RPG)

A software program that can direct the production of output reports if the computer is provided with format specifications and input file detail and can sort input data, input/output procedures rules, and other information.

Request For Information (RFI)

A type of solicitation normally used to test the market.

Request For Proposal (RFP)

(1)   Government contracting document that specifies the requirements of a procurement which contractors use to submit proposed solutions and cost information. The Government bases its contract award on the contractor response to the RFP.

(2)   A formal, documented request to one or more vendors for a proposal for hardware, software, or some combination of both. A request for proposal contains system requirements, a technical questionnaire, benchmark data to be used, vendor support requirements, contract conditions, and other information needed by the vendor to prepare a proposal. This procedure, while somewhat elaborate, reduces less formal discussions and negotiations to a defined group of specifications.

Request For Quotation (RFQ)

A type of solicitation document commonly used for small purchases under $25,000 or utilized where the government desires information on which to base later actions.

Requirement

(1)   A condition or capability needed by a user to solve a problem or achieve

an objective.

(2)   A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. The set of all requirements forms the basis for subsequent development of the system or system component.

Requirements Analysis

(1)   The process of studying user needs to arrive at a definition of system or software requirements.

(2)   The verification of system or software requirements.

Requirements Phase

The period of time in the software life cycle during which the requirements for a software system, such as the functional and performance capabilities, are defined and documented.

Requirements Specification

A specification that sets forth the requirements for a system or system component; for example, a software configuration item. Typically included are functional requirements, performance requirements, interface requirements, design requirements, and development standards.

Resampling

A procedure common in geographic data analysis that derives an alternative geographic data base by selecting the values of a given data base at a specific set of earth locations. The most common examples of resampling occur in earth resource image analysis applications, where an image data base is redefined by redefining the grid cell size. Examples of resampling include simple data base alterations such as selecting a data set that represents every other row and column and complex resampling procedures that perform projection transformations in regular grid cell data bases. Many resampling procedures are used in grid cell aggregations.

Rescale

Adjustment of values or parameters representing magnitudes or intensity so that data reflect an aspect more suited to users.

RESEQUENCE

A command verb used to change or assign line numbers within a data file; may be used in any subsystem under time sharing.

RESAVE

A command verb used to save the modified version of a file previously created by a user.

Residual Value

Value left to the government at the end of a life cycle. This is used in computing lease versus purchase for any proposal that ultimately vests title in the government during, or at the end of, the life cycle.

Resolution

(1) Measure of the ability of a display system to distinguish detail under certain specific conditions. The measure of this ability is normally expressed in lines per millimeter, meters per pixel, dots per inch, etc. Resolution applies to all raster (pixel) based computer graphic devices like graphic terminal screens, manual and automated digitization devices, dot matrix printing devices (laser, impact, ink jet), and a number of sophisticated plotting devices (pen, electrostatic, ink jet).

(2) A measure of the ability of an imaging system to separate the images of closely adjacent objects; also, the smallest area at which data can accurately be identified.

Resource Data

(1) In the BLM, data that relates to one or more, or all of the renewable and non-renewable resources identified in the Federal Land Policy and Management Act of 1976 as including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values. Typically, these data may be recorded as either alphanumeric values or thematic maps.

(2) Any information that describes that which exists as a source of supply or support; anything that can be drawn upon when needed, whether material or nonmaterial.

Resource Feature

Within a thematic map, a particular characteristic with some independent quality noted for specific purposes. For example, the thematic map could be water locations; the resource feature would be water wells, streams, or lakes, etc.

Resource Inventory and Monitoring Data Base

A data base that includes numerous existing data sets currently on the DPS 8/70 (e.g., IHICs, RAIDs, and SVIM/ecological site data). Resources include all of the renewable/nonrenewable resources the Bureau manages.

Resource Management Data

(1)   Data about the applications of the policy of balanced management of the public lands and resources and their various values, including fiscal and permitting data. This does not include the physical location and attributes or numerical calculations of the resources themselves. It does include calculations, records, and other information about managing the resources and/or programmatic tracking information, as well as data about the planning system, planning decisions and management designations.

(2)   The spatial display of resource decisions and designations, as well as alphanumeric data used in compiling information about plans, status of plans, content of plans in terms of kinds of management designations.

(3)   Data currently found in Case Recordation/ORCA, plus data all other types of Bureau authorizations, some of which are currently on systems other than CR/ORCA.

(4)   Data on resource management and programs' ongoing fiscal and permitting concerns and statistics.

Resource Modeling

The application of specific procedures or methods of analysis of existing data to compare it with predetermined variables to other data. Resources include both renewable (i.e., range, wildlife, forestry, etc.) and nonrenewable (i.e., minerals, recreation, wilderness, etc.) varieties.

Resource Values

Data on the natural and cultural resources that make up the ecological base and human base (past and present) of the public lands. The resource values category includes the basic spatial and alphanumeric physical inventory of resources and information on the presence and location of resources, but it does not include the Bureau's management or manipulation practices.

Response Time

Time period between terminal inquiry and computer response. It is one of the most frequently used measures of the performance of an inquiry/response or interactive system. Frequently, unrealistic demands for short response times lead to very expensive systems. On the other hand, poor system development is often passed off with comments about unrealistic demands. Response time requires careful evaluation to place it in proper perspective.

Responsible

The concept of a vendor being able to perform technically (including technical

skills and personnel); having the necessary plant facilities, tooling, parts, etc., and possessing the necessary financial resources to carry through the contract life.

Responsive

Requiring a vendor responding to an Invitation for Bids (IFB) to perform in the manner specified in the IFB with regard to terms, delivery dates, quantities required, and a price offering that is finite or determinable, not tied to unknowns contrary to the terms of the IFB. Technically, this term is not properly used in conjunction with a Request for Proposal (RFP) since everything except matters of law are negotiable, but it is commonly and erroneously used in this manner.

Restoration

A term used to describe the resurvey of original survey corners and lines based on the best available field evidence. Standard restoration procedures are provided by the BLM for the resurvey of Public Land Survey System corners.

Resurvey

A procedure that attempts to reconstruct boundary survey information based on notes provided by the original surveyor. The most important type of resurvey in the development of local government information systems is the restoration of Public Land Survey System corners. The original locations of these corners are integral to the development of a complete cadastral overlay data base. The resurvey procedure for original surveys involves an attempt to locate a significant amount of field evidence as to the exact location of an original corner. This evidence can include remnants of trees and planted evidence such as metal spikes. Most modern original survey restorations also include the generation of geodetic control coordinates for a recovered survey point.

Retirement Phase

The period of time in the software life cycle during which support for a software product is terminated.

Retrieve

To recover specific information from stored data.

Reusability

Extent to which a program can be used in other applications related to the packaging and scope of the functions that the program performs.

Reverse Channel

Provision for a simultaneous data path in the reverse direction over a half-duplex facility; normally it has a much lower band width (transmission speed) than the main data path. It is used most commonly for positive/negative acknowledgements of previously received data blocks.

Right Attribute

Refers to the area that lies to the right of a particular map line as that line is traversed. This relative directional reference is used in data bases to document the areas that lie on either side of a particular map line. The right attribute of a polygon generally refers to the polygon that falls to the right of the line as the line is traversed in the direction of map digitization. The right attribute also refers to the polygon that, when chained in a clockwise direction, uses a particular line segment in the direction it was digitized. The terms left and right attributes are used in the context of topological data structure, i.e., those geographic data bases that meet a predefined logical consistency (see topological). The Geobased DIME files of the 1970 and 1980 Censuses are one of the original data bases to employ topological data structures that distinguish between areas to the left and right of a line.

Right-Justify

To adjust the printing positions of characters on a page so that the right margin of the page is regular.

Right-Of-Way

(1) An identified piece of land on which some of the surface and subsurface rights have been reserved for the placement of specific facilities. The most common type of right-of-way is related to the placement of roadways. Land that is purchased for the development of highways must also have a number of surface and subsurface land rights reserved to allow for the development of the road. A good percentage of the land in highly urbanized areas is reserved for minimal surface rights-of-way. The great majority of parcel attribute information systems in local government do not identify and inventory each unique piece of right-of-way; however, an appropriate parcel-based land information management system should make an effort to identify and document each surface right-of-way reserved for roadways and other types of easements.

(2) A legal delineation of land that indicates a number of "pass-through" rights that an individual or organization may have on the land. The most common form of right-of-way involves surface pass-through rights that allow an organization to construct a road. Other examples of right-of-way are surface and subsurface easements that allow construction of canals, other drainage features, powerlines, and pipelines.

(3)   An easement, lease, permit, or license to occupy, use, or traverse public
       lands granted for the purposes listed in Title V of FLPMA.

Ring

A commonly used structure in programming, represented by a series of
contiguous pointers that if traversed will return to the beginning element. Ring
data structures are used in many applications related to areal coordinate spatial
data bases because they form a natural organization for a list of boundaries
that can be chained into a closed area. Ring structures are also used in
general data base management packages to simulate a variety of processes.

Roadway Characteristics Inventory (RCI)

An information system maintained by Florida DOT and many local governments
that describes the physical characteristics of the local roadway system. Most
characteristics inventories organize information based on individual segments
of roadway and the intersections at which these segments meet. The structure
of many characteristics inventories is similar to a geobased file. The most
common attributes maintained for roadway systems are the physical surface
characteristics (pavement type and condition), subsurface characteristics
(pavement underbearing), traffic control features (signs, signals, turn lanes), and
traffic characteristics (both theoretical, e.g., speed limit and actual, e.g., traffic
flow density).

Robustness

The extent to which software can continue to operate correctly despite the
introduction of invalid inputs.

Routine

(1)   A computer program segment that performs a specific task.

(2)   A program, or a sequence of instructions called by a program, that may
       have some general or frequent use.

Routing

Procedures that select the best path through a road system based on an
established set of criteria (See Vehicle Routing).

Roving Window

In MAPS, a grid of user-specified dimensions used in neighborhood analysis to
redefine cell values based on the values in nearby cells.

Row-Column Grid Cell Data

A method of storing grid cell data in which each element in the data base is preceded by an explicit row and column address location. Though inefficient for storing basic areal grid cell data bases, explicit row and column coding systems are often used to describe raster versions of sparse linear and pointal data bases. A version of the explicit row and column addressing scheme stores information in run length.

RS-232

A technical specification published by the Electronic Industries Association that establishes interface requirements between modems, terminals or computers, and communications lines.

RS-232-C

An EIA standard that defines the electrical signal characteristics and connector pin assignments for the interchange of serial binary data between computer components, e.g., minicomputers to modems. (See DB-25).

RS-422

An EIA integrated circuit-compatible standard that defines an interface circuit for high-speed binary data interchange, providing greater immunity to noise and giving lower error rates.

RS-449

An EIA standard designed to provide higher speeds and cleaner signals over longer distances than RS-232-C. A 39-pin connector is used to provide additional isolation and testing circuits.

Rubber Sheeting

Application of distortion and/or transformation corrections to match corresponding coordinates between data sets.

Rubberband

Ability to fix the ends of a line, or selected points along a line, in a static position and then "stretch" the line laterally between the fixed points to establish new geometric shapes.

Run Length Coding

A method of storing grid cell or raster data where contiguous cells of data (along a row or down a column) having the same value or attribute are coded into a single record. This form of data storage is highly efficient for coding

raster data created from sparse polygon data sets.

Run Time

(1)   A measure of the time expended to execute a program. While run time ordinarily reflects the expended central processor time, run time may also include peripheral processing and peripheral accessing time; for example, a run time of 5 hours.

(2)   The instant at which a program begins to execute.

Salable Minerals

(1)   Minerals that are ready to be offered or that are suitable for sale; marketable.

(2)   Sand, gravel, stone, soil, and other common variety mineral materials disposed of through sales at not less than their appraised price or through free-use permits.

Sales

The exchange of property or services for a determined amount of money or its equivalent.

Satellite

(1)   A relatively small body orbiting a planet; a moon.

(2)   A man-made object orbiting, or intended to orbit, a celestial body.

SAVE

Command verb used to store a file in permanent file storage; must be followed by a unique file name.

Scale

Ratio or fraction between the distance on a map, chart, or photograph and the corresponding distance on the surface of the Earth.

Scale Adjustment

The ability to alter the scale of output products in a mapping system. One major advantage of storing mapped information in digital form is that the coordinates are scale independent. A map of any scale can be created from a single set of controlled coordinates. The method used for any scale adjustment is simply to multiply coordinates by a factor which reduces them to those required for drafting a map at a particular scale. As with both rotation and translation operations, scaling routines are customarily provided by both plotting software packages and graphic hardware devices.

Scaled Coordinates

Coordinate estimates for earth locations that have been estimated using some map scaling techniques. Coordinates estimated from photogrammetric devices and other manual digitization devices are referred to as scaled coordinates. Scaled coordinates must be used with caution when setting up map digitization procedures that require a great deal of spatial accuracy and reliability.

Scan Digitize

To utilize an optical scanning device for data entry.

Scan Line

(1)   One of the parallel tracks covered by the electron beam of a CRT display or the oscillating mirror of an airborne or satellite sensor.

(2)   A simple row of symbols on an image produced by a line printer, matrix printer, or a similar device.

Scanned Map Data Entry

One of the newer approaches to capturing mapped data. Many turnkey systems now provide scanning technology as an option. Both laser and video scanning systems are employed; however, only laser systems are used for highly accurate scanning of maps. One of the shortcomings of scanning systems is that most base maps are not really prepared for scanning. Ancillary features must be edited (erased) from a scanned image before intelligent geographical data can be generated from the raw scanned image. To date, the major use of scanners has involved raw, highly detailed natural-features maps having few if any text annotation features. The most useful application of scanners, however, is for simple image transfer of maps. Examples of image transfer include the movement of mapped data to video or laser discs and the capture of image data to be reproduced in laser-printed documents.

Scanner

A device that senses an image and transforms it into digital data for sampled locations along the surface of the scanned image. The sampling unit for the scanner is called a raster. The data returned by the scanner can vary from intensity of reflectance for a single or composite band of radiation to a single bit that indicates the presence or absence of data (black on white image). The technology used for scanning varies from directed beam assessors (lasers) to simple conversion of analog video signals. Laser devices have extremely high resolutions and accuracies, while video-based systems tend to capture lower resolutions with far less accuracy. Scanning devices return simple raster data. This raster or grid cell data can then be used by image analysis systems to perform a variety of functions. Most scanning systems provide line following procedures that convert raster steady state raster data to digital vector (line segment) data.

Scanning

Process of using an electronic input device to convert analog information such as maps, photographs, overlays, etc., into a digital format usable by a computer.

Scheduling

The assignment of an order to a group of jobs to be performed on a computer system; synonymous with job scheduling. Scheduling is a function of an operating system. A number of different methods are available to support automated scheduling. The more sophisticated systems use computer data bases representing the street network in an area and use knowledge of this street system to determine the optimally schedule that individual vehicles should use for activities such as service calls.

Schema

A map of the logical data structure of a complete data base.

Schema Definition

The organizational structure for a data base. In data base management software systems, schemas are usually defined through a structured language that allows data records and data items within records to be defined. The schema language also supports higher levels of data organization such as pointer variables in hierarchical and network data base systems and key or index fields in relational or inverted file data base managers.

Screen

Term used to refer to the array of data portrayed on a cathode ray tube (CRT) terminal. It may be data keyed by the operator or transmitted from the computer.

Scribing

The art or technique of cutting with specially designed tools through a photographically opaque coating applied to a transparent base, usually plastic. Portions of the coating are removed, creating a negative image of the lines, letters, and symbols to be reproduced.

Scroll

The movement of information vertically or horizontally on a screen.

Search Pointer

Used by Text Editor to find characters or lines designated by the user.

Search String

In MOSS, a user-determined unique combination of alphanumeric characters; generally used with the SELECT by SUBJECT function to allow the system to retrieve a specific subject or subjects in a map.

Second Order

The accuracy ranking of one measurement or survey with respect to other measurements or surveys. First order is the most accurate, second order the next most accurate, and so on. Each order of accuracy is expressed in numerical terms, or such terms are understood.

Second Order Control

Procedures used to establish the geodetic location of a point using a strict set of procedures. Second order control procedures are based on a first-order framework. Modern geodetic control survey procedures establish second order control using modern technology that includes theodolites and electronic distance measuring (EDM) devices.

Section

A unit in rectangular original surveys that represents approximately one square mile (640 acres). In normal rectangular surveys, there are 36 sections in each township.

Sector

A unit of a disk track.

Secured Facility

Any building or room that is locked and has totally controlled access; usually has environmentally controlled conditions and fire protection.

Security Audit

An examination of data security procedures and measures to evaluate their adequacy and compliance with established policy.

Segment

(1)   A self-contained portion of a computer program that may be executed without the entire computer program necessarily being maintained in internal storage at any one time. (See also Component, Module, Subprogram.)

(2)   The sequence of computer program statements between two consecutive branch points.

(3)   To divide a computer program into parts.

(4)   A term used to describe a string of coordinates that represent the

boundary between two and only two areas on a map surface. Other terms used synonymously with segment are *arc* and *chain*. Methods for describing segments in data bases attempt to capture attribute data about the two areas on either side of the segment. The coding of these attributes is done based on which area is to the logical left of the segment and which area is on the logical right of the area. In topological data structures, lists of segments are used to describe the outside boundary of an area. If the segments are chained together, they form the boundary of an area or polygon.

Segregation

(1)   Generally speaking, any action, such as a withdrawal, allowed application (exchange), desert land segregation, etc., which suspends the operation of the general public land laws on particular public lands; regarding applications, the effect of certain types of applications which prevents any disposition of the public lands or resources involved until the application is adjudicated.

(2)   To separate or set apart; to remove lands from the operation of part or all of the public land mineral laws.

Sequential

Refers to data files in a serial order, i.e., one file after another, usually stored on magnetic tape.

Sequential Access

A data storage technique that requires data, such as records in a file, to be accessed only by going through them sequentially, one at a time. Magnetic tape storage is a common method of storage used when sequential access is the normal method of processing the data.

Sequential access is appropriate when there is no need to get at <u>specific</u> records rapidly. Sequential access is also used when the data are stored on a direct access device, and keys and (often) indexes have been created. In this case, records are accessed in the key order rather than according to the physical order of the records on the storage medium. Contrast with Direct Access.

Sequential Case Serialization

The act of giving each case its own unique serial number when the case is entered into the system. In an automated system, this serial number is assigned by the computer.

Serial Number

A sequential number assigned within each state to each case file; case files are established for the processing of actions relating to lands and minerals.

Service Address

Service address is often used in service delivery systems, such as those employed by local government utility facility managers. See Site Address.

Service Distribution Grid

In facilities management, the portion of a utility system that provides the major distribution system for a particular service. The representation of a service distribution grid in a computer data base can range from the depiction of only the major lines/pipes/roads in a system to the storage of data for every feature (node and link) in a facility network.

Session

Active connection of a terminal device to a <u>host</u> computer system, during which time interactions actually occur or can occur without the terminal having to reidentify itself (sign on) to the system. When a terminal is activated it "initiates session" and when it is deactivated it "breaks session."

Set

A grouping of related records in a data base.

Setup

(1)   In a computer that consists of an assembly of individual computing units, the arrangement of interconnections between the units, and the adjustments needed for the computer to solve a particular problem; also an arrangement of data or devices to solve a particular problem.

(2)   The parameters of a terminal or device which set emulation, speed, parity, and a host of other items.

Signal

An electrical quantity that transfers data from one point to another. In data communications, the signal may be in either analog (continuous) or binary (off/on bits) format, depending on the technology being used.

Significant Digit

A digit that is needed for a certain purpose, particularly one that must be kept to preserve a specific accuracy or precision.

Single Photo Resection/Intersection

Procedure for determining position and orientation of the camera (resection) or ground location (intersection) photogrammetrically with the use of a single photo and known control points.

Single-Value Assignment

An areal grid cell data base that assigns a single value for each phenomenon depicted in the grid. For example, single-value assignment schemes would relate a single land cover category to a particular grid cell. This method is distinguished from group value assignment methods that assign more than a single value for each data theme (usually distinguished by a percentage). The most common methods for assigned grid cell values in spatial information systems are the centermost method (category that occurs at the center of the cell) and the predominant method (category that occurs most within the cell).

Sink

An element in a network model that represents a destination point for a phenomenon that flows through a network. Concepts such as sinks are more common in directed networks that simulate the flow of fluids through manmade and natural systems.

Site Address

An address depicting the location of a property and/or structure. See also Service Address. A site address, if coded and managed properly, can be used as an analytical spatial identifier. Most useful site address coding systems are coded in fixed fields, use a standard set of syntax rules and abbreviations, and are based on some consistent methodology such as cross-street and/or grid systems.

Site Address Inventory System

A data base that maintains and manages a group of unique site addresses assigned to a community. The major function of many site address inventory systems is to provide a verification procedure for addresses being entered into application systems such as utility service systems. Most site address inventories are designed as a part of a larger application; however, recent years have seen the development of independent site address inventory systems that function as the basic address list for a number of independent application systems. Most modern site address inventories also attempt to relate addresses to some other set of spatial identifiers, the most common being parcel identifiers. Integrated parcel/site address identifier systems are becoming extremely common in local governments today.

Site Review

An automated mapping system function that allows personnel to look at several map overlays simultaneously to provide a view of the surface and subsurface characteristics near a particular proposed land activity. Site review functions require immediacy of interactive graphic update as opposed to analytical functions. Site review procedures in government often require read only access to a number of graphic data bases and are most often associated with evaluating the permitting activities of government.

Site Selection

Procedures that support the identification of one or more areas that meet a particular set of criteria. Site selection functions are extremely common in natural resource geographic information systems, where a number of thematic maps are overlaid to produce composite map images. These composite maps are then used, for example, to depict all sites that meet specific criteria (e.g., land that is currently undeveloped and/or cover categories) and that are suitable for placement of single family residential structures.

Site Suitability Analysis

Analytical techniques used to present a coherent picture of how well a particular location is suited for a specific purpose. This generally involves analysis of many types of interrelated information.

Sizing

The process of estimating the amount of computer storage or the number of source lines that will be required for a system or system component.

Skills Development

Collectively, all the procedures and devices used to impart skills to an individual. Skills development can include training, help screens, hot lines, appliques, overlays, guides, manuals, etc.

Sliver

(1)   Refers to a polygon formed when two adjacent polygons do not butt up against each other and leave a small space between themselves.

(2)   A gap between two lines created erroneously by a scanner and its raster-vector software.

Slope

Rate of rise or fall of a quantity against horizontal distance expressed as a ratio, decimal, fraction, percentage, or the tangent of the angle of inclination;

also called Gradient. Areas having high slope values are steep and will have far more intense measures of surface-related phenomena such as runoff and erosion. Most spatial information management systems that support the use of topographic data bases allow users to estimate slope values for discrete portions of a surface.

Small Scale

A term to describe a map that depicts a large amount of land area on a relatively small map sheet. Small scale describes mapping bases maintained by state and Federal Government agencies, generally describing maps that are scaled 1:50,000 or more.

Smart Terminal

A computer terminal with a minicomputer able to perform its own computations as well as providing communication with a host computer.

Smoothing

The process of applying procedures that decrease or eliminate rapid fluctuations in data. Smoothing is often used in contour data when topographic contours are angular.

Socioeconomic Data

Any class of data that describes the social or economic aspects of an area. The great majority of socioeconomic data bases are tabular in that data records retain summary statistic information (totals, means) for a particular phenomenon within a single area. Most socioeconomic data bases generalize data to say that a certain number of phenomena occur within a particular area, and often say little about where specific phenomena occur within the generalized area. The best example of socioeconomic data bases are the tabulation data sets created every 10 years by the U.S. Census Bureau.

Software

(1)   Computer instructions, including programs, procedures, rules, and possibly associated documentation and data, pertaining to the operation of a computer system (as distinguished from "hardware," the computer itself); consists of both the operating system programs and applications programs.

(2)   Various programming aids frequently supplied by manufacturers to facilitate a purchaser's efficient operation of the computer equipment. Such software items include various assemblers, generators, subroutine libraries, compilers, operating systems, and industry application programs.

Software Development Cycle

(1)   The period of time that begins with the decision to develop a software product and ends when the product is delivered or is no longer being enhanced by the developer. This cycle typically includes a requirements phase, design phase, programming phase, test phase, and, sometimes, installation and checkout phase.

(2)   Sometimes a synonym for software life cycle.

Software Development Process

The process by which user needs are translated into software requirements; software requirements are transformed into design; the design is implemented in code; and the code is tested, documented, and certified for operational use.

Software Documentation

Technical data or information, including computer listings and printouts, in human-readable form, that describe or specify the design or details, explain the capabilities, or provide operating instructions for using software to obtain desired results from a software system.

Software Improvement Plan (SIP)

A plan being implemented by the Bureau that integrates those activities needed to improve or reimplement   available software applications currently residing on BLM's Honeywell mainframe computer in order to prepare these applications for relocation to the Target System.

Sole Source

A procurement exception permitting direct negotiations with one supplier when only that supplier can satisfy the needs of the government; a noncompetitive procurement, which certifies that there is only one source available or capable of fulfilling   requirements.

Sort

To arrange data into a sequence for computer processing purposes. Sorting involves arranging records or other units of data according to some precise rules. Normally, an alphabetical or numerical sequence is used.

Source

An element in network modeling that represents a point where a phenomenon originates. Sources are concepts that are more common in directed networks that simulate the flow of fluids through manmade and natural systems.

Source Language

The language from which a statement is translated.

Source Material

Data of any type required for the production of ground control aerial and terrestrial photographs, sketches, maps, and charts; topographic, hydrographic, hypsographic, magnetic, geodetic, oceanographic, and meteorological information; intelligence documents; written reports pertaining to natural and manmade features of an area to be mapped or charted; and other products.

Source Program

(1) A computer program that must be compiled, assembled, or interpreted before being executed by a computer.

(2) A computer program written in a source language. Contrast with Object Program.

(3) A program written in a programming language (e.g., COBOL, FORTRAN, etc.). The source program must then be translated into an object program before a computer can understand and execute the program.

Space

The signal (communications channel state) corresponding to a binary zero. The spacing condition exists when no current flows (current-loop channel) or when the voltage is more positive than +3 volts (EIA RS-232-C channel).

Spaghetti Digitizing

A method of digitizing lines where nodes or bends need not be redefined, thereby saving time and energy.

Sparse

A characteristic of spatial data bases where few data elements are needed to represent the information contained on a particular map. Sparse data sets are converted into relatively small data bases.

Spatial

(1) The quality of an object that occupies space. An object having the spatial quality can be quantified in terms of length, distance, area, or other physical dimensions.

(2) Pertaining to, involving, or having the nature of space.

Spatial Accuracy

A measure that describes the error in a spatial data base. Every point in a data base is a coordinate estimate of location based on a predefined mathematical projection. This location varies by some distance from the actual earth location of the feature being mapped. The difference between the estimated and actual positions represents the spatial accuracy of the data base. A measure that averages in some way the error in coordinate estimates across a map surface reflects the average spatial accuracy of a spatial data base.

Spatial Analysis

Analytical techniques associated with the study of the location of geographic entities, together with their spatial dimensions.

Spatial Analytical Functions

A family of statistical routines designed to operate on spatial data sets and derive relationships between spatial data bases. Most spatial analytical functions are designed to operate on coordinate data bases. Examples of spatial analytical routines include nearest neighbor (proximal) analysis, point-in-polygon analysis, and trend surface analysis.

Spatial Data

Any element in a data base that has some form of spatial identifier. Spatial data is useful to disciplines such as geography, natural resource planning, geology, hydrology, oceanography, and meteorology. The spatial identifier related to a spatial data base element can be coordinates, site address, geographical area identification codes (geocodes), and parcel identifiers. There are eight general classes of spatial data bases: point attribute, linear network, areal coordinate, areal grid cell, terrain, geocoded tabular, parcel attribute, and address based.

Spatial Data Bases

Collections of spatial information related by a common fact or theme.

Spatial Data Sets

Collections of similar or related spatial data records that are recorded for use by a computer.

Spatial Filter

An image transformation, usually a one-to-one operator used to lessen noise or enhance certain characteristics of an image. For any particular (x,y) coordinate on the transformed image, the spatial filter assigns a gray shade on the basis of the gray shades of a particular spatial pattern near the (x,y) coordinates.

Spatial Identifier

A variable assigned to a data record that provides some form of spatial reference. There are four major classes of spatial identifiers: coordinates, geographical area identification codes, site addresses, and parcel identifiers. Spatial identifiers are added to data bases to reference the relative location of one record to another for some specific reporting or analytical purpose.

Spatial Index

An index built into a data base system that supports the selection of data records as a function of their earth location. The most common spatial index is based on a hierarchical set of geocodes related to a data record (e.g., the census tract and block that a record relates to). More modern land information systems also provide spatial indices based on coordinates. The majority of these indices consist of a hashed key that is made up of some combination of bits obtained from a single two- or three-dimensional coordinate associated with a data record. This hashed key field can then be manipulated to support the extraction of data based on such spatial functions as proximity and inside.

Spatial Information Management

A collection of procedures that create, edit, manage, and report spatial data bases (data bases having spatial identifiers). The procedures required to manipulate different classes of spatial identifiers can be extremely diverse. For example, systems designed to manipulate site address data require procedures that are quite different from systems that work exclusively with coordinate spatial references.

Spatial Selection Criteria

Retrieval procedures that support the selection of data base procedures using the relative earth location of entities described in the data base. Examples of spatial retrievals include extractions based on a radius around a single point or a corridor around the border of a linear or areal feature, and the extraction of all points that lie inside of an arbitrary areal feature.

Spatial Tolerance

The allowable variation of space from a standard or a specified distance.

Special Function (SF) Keys

The group of 16 keys located at the top of the keyboard that can be programmed to perform specific tasks within various applications.

Special Survey

A cadastral survey that involves unusual applications of, or departure from, the rectangular system of surveys. Special surveys include small tract, townsite, island, homestead, and mineral surveys.

Specification

(1)   A document that prescribes, in a complete, precise, verifiable manner, the requirements, design, behavior, or other characteristics of a system or system component.

(2)   A concise statement of a set of requirements to be satisfied by a product, material, or process indicating, whenever appropriate, the procedure by which it may be determined whether the requirements given are satisfactory.

Spectral Data

A remote sensing term referring to spatial data that is collected based on the wave length, frequency, or reflective value of light.

Spherical Coordinates

Term used to describe the absolute coordinate reference system for the earth. Spherical coordinates are pairs of angular values such as latitude and longitude or right ascension and declination which locate points on a sphere with reference to fixed, or defined, great circles.

Spheroid

(1)   Any figure differing slightly from a sphere.

(2)   A mathematical figure closely approaching the geoid in form and size and used as a surface of reference for geodetic surveys. See also Ellipsoid of Revolution.

Spheroidal Angle

The angle between two intersecting great circles.

Spheroidal Triangle

A closed figure having arcs of three great circles as sides.

Spike

A sudden peak or drop in electrical power. A spike may cause a computer to lose data or may produce other problems.

Spooling

(1) The reading and writing of input and output streams on auxiliary storage devices concurrently with job execution in a format convenient for later processing or output operations; synonymous with concurrent peripheral operations.

(2) A process of printing computer files to paper output that documents the input and output activity of a particular software execution. The printed file (spool) is then sent to software systems managers for review and to determination of problems.

SPOT

An unmanned French earth-orbiting satellite, the first version of which was launched in 1986. Sensors aboard SPOT 1 have 10- and 20-meter spatial resolution.

Spot Elevation

A data base that provides discrete elevation locations for particular points on the earth's surface. Spot elevations are often taken in survey field work to prepare for the development of spatial data bases such as contour maps. Modern computer mapping procedures provide methods for the extrapolation of contour lines from a data base having discrete elevation locations.

Spot Size

A size of a single viewable location on a photograph. The term is used to describe the size in earth units that is represented by the smallest viewable feature. Spot size is calculated in photography based on the elevation of the aircraft, orientation information for the aircraft, and the stock used in both filming and reproduction. The term *spot size* is also used to refer to the size of a single cell in a raster or grid cell spatial data base.

Stand-Alone System

A computer application system that operates independently of any other systems available in a data center. Stand-alone systems may, and often should, share data with other independent systems; however, a stand-alone system is designed to operate from a dedicated set of hardware, software, and human resources. Stand-alone systems that operate on a dedicated hardware system are often called turnkey systems.

Standard

An exact value, a physical entity, or an abstract concept established and defined by authority, custom, or common consent to serve as a reference, model, or

rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results. A fixed quantity or quality.

Start Bit

In asynchronous data communications, a <u>bit</u> prefixed to a <u>byte</u> (character) as an alert to the receiving device. A start bit has no information value; it simply notifies the receiver that information is being sent.

State Plane Coordinates

A series of projection coordinate systems for every State defined by the National Geodetic Survey (NGS) and its predecessor, the Coast and Geodetic Survey, based on either Lambert conic conformal or Transverse Mercator projection. Each State is divided into one or more zones.

The general statement of accuracy of State Plane Coordinates (SPC) is 1 part in 10,000. All SPC values are computed on a reference spheroid and as such are datum dependent. Therefore the datum must be specified. In the NAD 27 Datum, SPC values are survey feet; in the North American Datum 1983 (NAD 83), the values are meters.

Statistical Assessment Systems

A software package that performs a family of statistical assessment functions ranging in complexity from simple descriptive statistics (means, frequencies, cross-tabulation) to complex statistical analysis procedures (multiple linear regression, factor analysis). Most statistical assessment systems also provide rudimentary data management and editing functions as well as a procedural language that supports the development of programs to perform integrated data management and statistical analysis. Most of systems on the market also provide business graphics functions supporting the generation of simple statistical charts (histograms, pie charts, line charts) and thematic maps (choropleth).

Statistical Mapping

Mapping methods that integrate a set of statistical data with locational information for that statistical data to produce maps that depict the statistical phenomena across a map surface. Examples of standard statistical mapping procedures are choropleth maps (population data by county), prism maps (three-dimensional maps depicting population data by county), dot density maps (shade maps depicting population density), and graduated figures maps (circle maps depicting population totals by cities). A number of turnkey software packages available on the market are designed exclusively to produce statistical maps. Most statistical mapping packages also offer procedures to manipulate statistical data related to specific geographical locations, e.g., SAS/GRAPH.

Statistical Multiplexing

Multiplexing through time division by allocating time slots only on the basis of input need. Thus, time slots are allocated dynamically only to equipment with data to be transmitted.

Statistics

The mathematics of the collection, organization, and interpretation of numerical data; especially, the analysis of population characteristics by inference from sampling.

Stereo Coverage

A method in aerial photography that supports the capture of two individual photographs for each portion of an earth coverage. These photos are taken at strategically different angles. Once developed, the photographs can be composited using a photogrammetric device to provide a pseudo three-dimensional photographic image of the earth surface. This device can be used, when tied with known earth horizontal and vertical locations, to produce three-dimensional surface data bases such as spot elevation data sets and interpreted contour data.

Stereo Pair

Two photographs with sufficient overlap of detail to make possible stereoscopic examination of an object or an area common to both.

Stereographic

A view of aerial photography that is based on two controlled aerial photos and that can be used to establish a three-dimensional model of the earth's surface for the capture of both planimetric and topographic data.

Stereoplotter

A category of machinery that generates three-dimensional photographic images to be used for interpreting elevation readings. Images in stereoplotters are rectified to produce a three-dimensional view through a pair of viewing scopes. A trained interpreter then draws contour lines or individual elevation points on the basis of this rectified stereo photography. Many modern stereoplotting systems allow the interpreter to draft the contour lines using a digitizer device, the final map being drafted on computer graphic devices. Another technique allows the operator to select specific elevation points and then have computer software generate the contour map from discrete pointal information. Digital contour maps provide the interpreter with the opportunity to perform many cosmetic alterations to the interpretation, including smoothing of the lines and the automated assignment of contour labels.

Stipulations

Restrictions or conditions applied to the use of the public lands or resources by the Bureau, possibly in cooperation with other agencies. Stipulations are related to case type and to specific land description areas. The stipulations file is accessed when applications are processed, and stipulations for the case are applied to the appropriate land when the Bureau authorizes the case.

Stipulation File

A file of stipulation requirements that specifies a resource conflict or a use restriction on a specific piece of ground. This file is used in authorizing documents.

Stop Bit

In asynchronous data communications, one or two bits sent after a character to create a pause so the receiving machine has time to act on the character (i.e., to print or otherwise process it) before the next is sent.

Storage Allocation

The process of reserving blocks of storage for specified blocks of information.

Storage Devices

Any computer equipment into which information can be inserted, retained for an indefinite period, and retrieved for later use.

Storage Tube Display

A CRT display for which an image can be stored on the screen for several minutes or longer with a single pass of the electron beam.

Stormwater System

An automated computer data base that simulates the overland flow of stormwater through an area. A variety of methods are used in simulating the overland flow of water, these methods usually emphasizing the flow through either natural drainage features or manmade features, but seldom both. Stormwater utility management systems are designed similar to roadway and other utility networks, these data sources emphasizing individual segments of a system and the connectivity between these segments. Natural feature drainage management systems emphasize methods for determining overland flow in an area and how that flow impacts the local natural drainage system.

Stream Increment Point Digitizing

A method of digitizing lines whereby an increment is specified and a point is

automatically recorded each time that the increment distance is covered along the line.

String (Chain)

(1)   A linear sequence of entities such as characters or physical elements; a group of consecutive characters in a line of data.

(2)   A group of bits, bytes, or characters recognized and processed as a single unit of data.

(3)   Records arranged in some order according to the values in specific fields.

Structure

Term used to describe any physical facility that is located on a particular parcel of land and that in some way improves the value of the parcel. Most structures are buildings; however, any parcel improvement can be described as a structure. One common type of data base developed in local governments provides an inventory of all structures in an area. Most property appraiser data bases maintain a rudimentary structure inventory for use in the automated assessment of parcel values.

Structured Analysis

A systematic, top-down analytical technique that refines high-level project charter objectives and presents them in a layered network model of business requirements.

Structured Design

A disciplined approach to software design that adheres to a specified set of rules based on principles such as top-down design, stepwise refinement, and data flow analysis.

Structured Program

A program constructed of a basic set of control structures, each one having one entry point and one exit. The set of control structures typically includes a sequence of two or more instructions; a conditional selection of one of two or more instructions, or sequences of instructions; and the repetition of an instruction or a sequence of instructions.

Structured Query

A standard method of asking a Relational Data Base Management System (RDBMS) for specific information. One method of implementing structured queries is called SQL (for Structured Query Language, pronounced sequel); SQL has been used by about four major RDBMSs, including ORACLE and

UNIFY.

Stylus Printer

See Matrix Printer.

Subject

In MOSS and MAPS, an identifying description (usually in alphanumeric characters) for a map item, such as grassland, water, highway, etc.

Subprogram

A program unit that may be invoked by one or more other program units. Examples include procedure, function, and subroutine.

Subroutine

(1)   A sequenced set of statements that may be used in one or more computer programs and at one or more points in a computer program.

(2)   A routine that can be part of another routine.

(3)   A subprogram that is invoked by a calling statement that may or may not receive input values and that returns any output values through parameter names, program variables, or mechanisms other than the subroutine name itself.

Subset

A portion of a larger set. For example, a character subset is a portion of a full character set. In this example, the subset is the portion of a full character set implemented on a particular model of computer. A programming language may have a subset developed for it to make it easier to use or to permit the language to be handled by a microcomputer. For example, QWIKTRAN is a subset of FORTRAN that contains most of the facilities of FORTRAN but is easier to learn. PL/M is a subset of PL/1 developed specifically for microcomputers.

Subtract

A relational algebraic function that compares information from two relations and writes the contents of one relation to a new relation based on whether a row with a common identifier was not found on a second relation. Subtraction or difference functions compare relation A to relation B using a key attribute field. The results of the function are a relation C that is structurally similar to A; however, it contains only those rows that did not match with a record in relation B.

Suitability Analysis

Procedures in a spatial analysis system that determine whether a particular area is suitable for some geographic or location-related activity. Suitability analysis is a function common to natural resource analysis systems. For example, spatial data from a variety of sources can be analyzed to determine whether a particular piece of land is suitable for a specific land use. Land suitability analysis is often performed by land managers when evaluating the best possible use for a target piece of land.

Superimposition

To lay or place an item (e.g., an overlay) upon or over something else (e.g., a map).

Supervised Classification

A computer-implemented process through which each measurement vector is assigned to a class according to a specified decision rule, where the possible classes have been defined on the basis of representative, or "training," samples of known identity.

Supervisory Program

Computer programs designed to coordinate, service, and augment the machine components of any system and to coordinate and service application programs. These computer programs handle work scheduling, input-output operations, error actions, and other functions.

Support Service

On-site contractor who supports all specified needs within the scope of a contract.

Surface

A level of spatial measurement referring to a three-dimensional defined space. Examples include contours, isolines, bathymetry, etc.

Survey

(1) An orderly process of determining data relating to any physical characteristics of the earth.

(2) The process of making measurements, recording observations, and marking boundaries of land. With respect to geographic coordinates, the term *survey* includes establishing control on survey monuments by accepted conventional control traverse or satellite positioning methods.

Surveying

(1)   The process of data collection by observation and measurement.

(2)   The science and art of making all essential measurements in space to determine the relative position of points and/or physical and cultural details above, on, or beneath the surface of the earth and to depict them in usable form, or to establish the position of points and/or details. Also, the actual making of a survey and the recording and/or delineation of dimensions and details for subsequent use.

(3)   The acquiring and/or accumulation of qualitative information and quantitative data by observing, counting, classifying, and recording according to need. Examples are traffic surveying to determine the type, number, speed, relative positions, and origin and destinations of vehicles; and soil surveying to classify soils by type and to measure and delineate their boundaries.

Survey Monument

See Corner and Monument.

Sustained Yield

The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands, consistent with multiple use.

Switched Line (ADP)

A line connected to switching equipment that automatically routes information between the calling and called parties or equipment after dialing has been completed.

Switched Line (Telecommunications)

One of a series of lines that can be interconnected through a switching center; often used to refer to the public telephone network.

Symbolized Points

Points which are represented by an assigned symbol.

Symbols

Any representation of something else. Symbols include numbers and alphabetical letters that stand for quantities and values. Programming languages make frequent use of symbols, particularly mnemonic symbols, which have some inherent meaning in their representation. For example, in a program, the

symbol "file" represents an external source of data, usually a file located on an auxiliary storage device.

Symmetric Grid

A grid cell or raster data base that organizes representations of a surface into regular, contiguous cells. Examples of symmetric grids include rectangular and hexagonal grids.

Sync Character

A character of defined bit pattern that is used by a receiving terminal to adjust its clock and achieve synchronization.

Synchronization

Process of adjusting a receiving terminal's clock to match the transmitting terminal's clock.

Synchronous

Happening simultaneously or in step; specifically, a form of transmission that uses no redundant information (such as the start and stop bits in asynchronous transmission) to identify the beginnings and ends of characters. The timing base is supplied by sync characters transmitted prior to data; usually, synchronization can be achieved in two or three character times. Synchronous can also mean having a constant time interval between successive bits, characters, or events.

Synchronous Data Link Control (SDLC)

An IBM communications line discipline or protocol. Unlike bisync, SDLC provides for full-duplex transmission and is more efficient.

Syntax

(1) The precise rules and procedures of a programming language. The syntax of the language relates to how symbols are used and what rules control the *structure* of the program. The reserved words in a language represent part of that language's syntax. Syntax contrasts with program logic, which has to do with the *methodology* used by the programmer. Syntax errors normally can be detected by a translator when converting a program from source code to object code. Program logic errors cannot usually be found and corrected as easily.

(2) The relationship among characters or groups of characters, independent of their meanings or the manner of their interpretation and use.

System

(1)   The total collection of interconnected and interrelated equipment and its
       processing capabilities available to perform data processing functions.

(2)   A collection of interrelated programs, typically using a common data base
       or interconnected data bases to produce output for functional users.

(3)   A collection of people, machines, and methods organized to accomplish
       a set of specific functions.

System Analysis

The review of existing procedures and systems to determine how these can be
interpreted in a new or revised computer system.   The systems analysis
process may include the review and documentation of existing manual
(noncomputerized) systems, as well as a look at existing computer systems.
This process normally includes reviewing existing documentation or creating
new documentation, defining the system requirements that a proposed computer
system is expected to meet.

Within the process of system development, system analysis work normally
includes all activities up to the actual programming (coding) activities.

System Architecture

The structure of and relationship among, the components of a system. System
architecture may also include the system's interface with its operational
environment.

System Card

The circuit board in the electronics unit of the Wang PC that contains the CPU,
RAM, EPROM, and several system connectors.

System Design

(1)   The process of defining the hardware and software architectures,
       components, modules, interfaces, and data for a system to satisfy
       specified system requirements.

(2)   The result of the system design process.

(3)   A graphic description of the nature and content of input, files, procedures,
       and output used to display the necessary connection processes and
       procedures of a system.

System Development Life Cycle

An inclusive term used for the analysis, design, programming, testing, and implementation of an ADP system.

System Integrity

The state that exists when an ADP system is based on a logically correct and reliable operating system, and logically complete hardware and software to implement protection mechanisms, and logically complete and correct data.

System Model

Representation of the information types, directions of flow, production stages, and user interfaces for a system.

System Programmer

(1)   A programmer who plans, generates, maintains, extends, and controls the use of an operating system with the aim of improving the overall productivity of an installation.

(2)   A programmer who designs programming systems and other applications.

System Requirements

A description of the hardware, software, and telecommunications capabilities that are needed to support the functional and performance requirements.

System Software

The computer programs, usually provided by the computer manufacturer, that are necessary for processing applications programs and for operating the computer and its peripheral devices.   Included are assemblers, compilers, operating systems, and utility routines.

System Software Diskette

A diskette containing system software consisting of a collection of programs written to coordinate the operation of all computer circuitry, allowing a computer to run efficiently.

System Test

(1)   The process of testing an integrated hardware and software system to verify that the system meets its specified requirements.

(2)   A series of black-box tests on a completely assembled software package that demonstrates conformance with requirements.

Systems Analysis

The analysis of an activity to determine precisely what must be accomplished and how to accomplish it.

Systems Life

See Life Cycle.

Systems Manager

The individual responsible for a computer system's physical management and operation, including the computer operating system (OS), access and physical security, specific user assistance, computer networking, and configuration management.

Systems Network Architecture (SNA)

IBM's network protocol. SNA provides an interface between various components within an IBM-oriented computer system. SNA is one of several software products designed to manage the communications functions within a computer network, as well as between different computers.

Table

(1) A collection of data in a form suitable for ready reference, usually with each item uniquely identified by a label or its relative position to all other items.

(2) A table represents an entity and is made up of rows and columns; also called a Relation.

Tablet

Term used to describe a particular type of manual digitization device. Tablets consist of a rectangular, active surface and a device that allows users to identify relative locations across that surface. Most tablets operate by interrupting the flow of electricity through a magnetically charged field using an electronic cursor.

Tablet Digitizing

A process whereby a user utilizes a digitizer tablet, which resembles a small drafting board, to "draw" images. These images are transmitted directly from the digitizer tablet to the computer and are normally displayed on a cathode ray tube (CRT). Useful in design work such as computer-aided engineering (CAE).

Tabular Data

Data that represents summary statistics for an area. The most common form of tabular data is the summary (total); however, tabular data sets often contain other descriptive variables such as means, medians, variances, and standard deviations. The best example of a tabular data set is the Summary Tape Files available from the Census Bureau.

Tabulation Data

(1) Data in a row and column format.

(2) A data base that consists of statistical summaries of information within discrete areas, e.g., representing the number of people within a county by a county number, followed by a number which represents the number of individuals in that particular county. Tabulation data generalizes information within discrete areas, thus providing little information as to the exact occurrence of the phenomena represented in the tabulation data base.

Tagging Attributes

One or more characters attached to an item or record for the purpose of identification.

Tape Drive

A device that moves tape past a read/write mechanism; synonymous with tape transport.

Tape Mark

The special character written on tape that signifies the physical end of the tape recording.

Target

The system software and hardware, system components, and system documentation that is the product of the Bureau's present Land Information System design and development effort; estimated to be fully operational by the year 1999.

Target Accuracy

Represents the level of spatial error that is acceptable in a particular spatial data base. A target accuracy must be established initially in a project so that procedures used to capture digital base maps can assure that the accuracy criteria can be met. A target accuracy is usually described as the number of feet (meters, inches) that the average digitized representation of an earth location is from the actual feature location. Most adequate automated mapping projects establish an acceptable target accuracy, specify data input procedures that will provide that acceptable level of error, and determine quantitative procedures to assess the actual spatial accuracy of a data base throughout the life of the project.

Target Land Information System (LIS)/System

The land information system scheduled for implementation in the mid-1990's.

Task

(1)   One of several programs currently in execution under the control of a multiprogramming operating system.

(2)   Any major activity performed by a computer.

Tax Mapping

A term used synonymously with cadastral or parcel mapping.

Telecommunications

(1)   The electronic transmission and reception of data, including voice, data, facsimile, and other information over telephone and other communications

lines. Telecommunications may use any of a variety of communications channels such as wire, radio, television, microwaves, or fiber optics.

(2)   Data transmission between a computing system and remotely located devices via a unit that performs the necessary format conversion and controls the rate of transmission.

Telecommunications Access Method (TCAM)

An IBM macro language used for creating communications message control and applications programs.

Telecommunications Lines

Telephone and other communication lines that are used to transmit messages from one location to another.

Telemetric Procedures

Methods that support the remote measurement, recordation, and transmission of data related to a particular phenomenon. One common use of telemetric procedures is the remote collection of atmospheric data related to standard weather measurements as well as more sophisticated procedures that measure air pollution particulate density. Surface water level and flow rates are also examples of data that are collected using a variety of devices. Recently, more automated methods have been employed for the assessment and analysis of traffic information used to determine control procedures for traffic lights.

Teleprocessing

A combination of the words telecommunications and processing. Teleprocessing involves the use of a communications channel to connect computers and peripheral devices. Data processing is performed by the computer, with the input and output from the processing operation transmitted to the user. Compare with Remote Processing. Contrast with Remote Batch Processing.

Telescoping Grids

A method for the organization of grid cell data bases that defines a theoretical grid made up of a series of rays emanating from a specific point at a constant divergence angle from the adjacent lines. The cells in these grids are then defined by the intersection of the rays with a mesh of circles spaced systematically. Most telescoping grids use circles that are equal radii apart, though logarithmic versions of telescoping grids are also used. Telescoping grids are useful for measuring and modeling phenomena that converge on a specific area. The best example of an application for telescoping grids is the calculation of a storm surge based on the projected path of a major storm such as a hurricane. Many nuclear disaster planning models also use telescoping grids for their assessments.

Template

A guide or pattern that is used to establish site-specific input to the Target System Implementation Plan.

Temporal Data

Information that is available for use on a short-term basis; transitory; short-lived.

Temporary Regulation

A method whereby GSA issues temporary amendments to the FPR and FPMR to test their effectiveness prior to issuing a permanent amendment.

Terminal

(1)   A device used to input or output data from a computer, often from remote sites.

(2)   A device for communication with a computer; usually includes a keyboard and a CRT display or printer.

(3)   Any device capable of sending information over or receiving information from a communication channel.

Terrain Analysis

Analytical techniques to determine the effect of terrain on a particular operation; usually involves slope, soil types, vegetation, etc.

Terrain Data

One of the basic classes of spatial data. The three most common types of terrain data are contour terrain data, triangulated grids, and regular grids. Contour terrain data stores lines that represent continuous elevation values. Triangulated grids generate individual triangles from discrete points by grouping triples of (x,y,z) values. Regular grids maintain interpreted elevation readings for a regular set of grids, most often rectangular (although hexagonal grids are becoming more prevalent). The most common method of maintaining terrain data is to simply store a single elevation reading for a particular horizontal earth location. These random terrain points can then be used to generate other types of terrain data bases. Most terrain data bases maintain elevation information and its variants, slope and aspect. Terrain types of data are also used to store, display, and analyze almost any statistical surface data.

Test Phase

The period of time in the software life cycle during which the components of a software product are evaluated and integrated, and the software product is evaluated to determine whether or not requirements have been satisfied.

Test Time

That portion of development time used to run programs before they enter production status.

Testability

The extent to which software facilitates both the establishment of test criteria and the evaluation of the software with respect to those criteria.

Text

(1)   Data portion of a message.

(2)   Electronic pulses representing digital data that can be translated into printable characters by an appropriate output device such as a terminal or printer.   Standard asynchronous computer communications through common carrier phone lines is one example of text data.

Text Editor

Software routines developed to enable users to handle on-line formatting (keying and editing) of information, including programs and data.   Facilities provided by text editing software permit the saving and retrieving of files; the copying, moving, inserting, changing, reformatting, and deleting of data; searching for character strings; and similar functions, resembling many word processing features.   See also the term, Editor.

Thematic

Relating to a specific theme or selected phenomenon such as wildlife, soils, vegetation, etc.

Thematic Map

A map displaying selected kinds of information relating to specific themes, such as soil, land use, population density, suitability for arable crops, and so on. Many thematic maps are also choropleth maps, but when the attribute mapped is thought to vary continuously, representation by isolines is more appropriate.

Thematic Mapping

A class of mapping that produces maps depicting a specific set of thematic

information across a map's surface. Thematic maps can depict land use, vegetation cover, soils, or other information. These are distinguished from simple planimetric and topographic maps that simply depict locational data such as rivers, streets, and cities. A subclass of thematic maps consists of maps depicting a statistical variable across a surface, such as maps showing census tabulations by census tract.

Thematic Mapping Display

  See the term, Thematic Map.

Thematic Topics

Overlays consisting of a single type of data which are intended to be used with base data.

Theme

The overall topic of a map in which the spatial variation of a single phenomenon is illustrated. For example, a vegetation theme map might illustrate pinyon-juniper, Douglas fir, and sagebrush.

Thessian Polygons

A procedure of constructing a polygon map from a discrete set of coordinate locations. The polygons are formed by intersecting all possible perpendicular bisectors of segments connecting discrete points. A Thessian polygon represents the boundary of all points that are nearer to a particular discrete point than any others.

Thinning

(1)   A process whereby a linear feature is generalized through the use of a series of rules which reduce the number of data points while maintaining the basic shape of the feature.

(2)   A process whereby a linear feature is represented in a grid by a continuous series of cells, each of which touches along its sides and corners, with no more than two other cells belonging to the feature.

(3)   A process of eliminating or excluding data (also known as weeding).

Third-Generation Computer

A computer utilizing solid-state logic technology components.

Thrashing

A situation that occurs when a high percentage of demands for computer

memory segments invokes the "overlay" process (See Overlay). So much time is spent in overlaying that system performance is degraded beyond tolerable limits. This usually occurs when the system is attempting to execute more programs than it can conveniently fit in its main memory.

Three-Dimensional (3-D) Data

Volumetric data representing measurements in three dimensions, e.g., angular or linear measures such as phi-lamda-kappa, latitude-longitude-elevation, etc.

Three-Dimensional Display

A display composed of data containing x, y, and z elements, such as depicting a bird's-eye view of terrain.

Three Space

A term used to describe three-dimensional, real number coordinate systems. Three space is often called Euclidean.

Tickler Function

A procedure in process tracking systems that reminds users when specific functions in the process are to be completed. The most common form of tickler function is a printed letter or memorandum that is designed to inform participants of upcoming requirements. A tickler function is also known as a reminder function.

Tickler System

An automated reminder system to generate follow-up dates for compliance checks, billings, reappraisals, etc. On any given day the tickler system can be checked for required actions.

Tie

A direct relationship established between two identifiable objects on the surface of the earth. Ties are most often used in surveying. When field monumenting is established for some purpose, it is often important to tie the location of a monument to several semipermanent features near the monument. In this way, if the original monument is lost or disturbed, the tie relationships between the monument and nearby objects can be used to re-estimate the position of the lost monument. Ties are used quite often in ground surveying to provide a backup set of data in case original field evidence is lost.

TIGER File

A modern geobased file structure being developed nationwide by the Census Bureau for use in the 1990 Census. The TIGER system will provide data similar

to the information in the GBF-DIME files of the 1970s; however, the newer data base will be more flexible, be topologically structured, and have vastly improved coordinate information. The source coordinates being used for TIGER development are digitized 1:100,000 base maps currently being completed by USGS.

Time-Division Multiplexing (TDM)

A method of multiplexing that separates individual messages into different time frames. Each communications channel is allocated a particular time slot within a given block (period) of time. That channel retains that exact time slot in each successive time block. The equipment at both the transmitting and receiving ends of the communications channel is synchronized to ensure the proper routing of information. Contrast with Frequency-Division Multiplexing.

Time Series

A set of data that has some reference to the time that the phenomena documented in the record occurred. Time series data can be managed and displayed in an order that is based on the time of occurrence. This time variable can also be used for sophisticated statistical analysis that assesses relationships between data records, using time as an independent variable.

Time Series Models

A variation of quantitative modeling that evaluates variables over time. Most of these models are designed to predict future trends of a particular set of measured phenomena. Most time series models develop relationships between previously observed trends and then project the trends into the future. Geographic information systems often use time series modeling concepts in assessing future changes in spatial phenomena such as land use and environmental quality. Most of these spatial time series models work by producing simple tabulations for individual geographical zones (counties), although more sophisticated procedures do exist to predict the actual locations of the projected changes.

Time Sharing

(1)   An operating technique of a computer system that provides for the interleaving in time of two or more processes in one processor.

(2)   Pertaining to the interleaved use of time on a computing system that enables two or more users to execute computer programs concurrently. The response time is usually so fast that each user is given the impression that the computer's resources are totally dedicated to his task.

(3)   Sharing the processing time of a single computer facility (possibly involving multiple processors) among multiple, simultaneous users. Time-sharing has become popular as a commercial service. The techniques

developed have contributed significantly to advancing the usefulness of computers in general.

Time-Sharing Option (TSO)

An IBM teleprocessing feature widely used on IBM's larger computers. TSO is used primarily to support program development of application programs by providing on-line support to a large number of users.

Time Sharing System (TSS)

A major program on the Honeywell 66/80 that incorporates a number of subsystems and programs which permit users to simultaneously access the computer to create and maintain files and process information on-line, as if each had exclusive use of the computer.

Time Tracking

A procedure in an information system that supports the tracking of a process in a computer information system. Many tracking information systems key on time sequences to assure that a process is completed expeditiously. The most important process tracking systems in local governments provide facilities for reminding participants of evaluation deadlines. A permit tracking system, for instance, provides a number of time tracking functions that are oriented toward completing all processes within 120 days of permit application submission.

Timeliness

A measure of a data base that indicates how up-to-date information is. Timeliness measures are often based on the amount of backlog there is for data that must be added to, or updated on, a particular data set.

Title

See Land Title.

Tomography

A computer graphic and remote sensing technology that is used for diagnostic procedures in medical science. A tomograph is a machine-readable, three-dimensional image produced using multiple-view X-ray photographs. Turnkey computer systems have been developed that handle and manipulate tomographs.

Top-Down

Pertaining to an approach that starts with the highest level component of a hierarchy and proceeds through progressively lower levels; for example, top-down design, top-down programming, etc.

Topographic Analysis

Analysis of the configuration of the surface of the Earth, including its relief and the position of streams, roads, cities, etc. Usually subdivided into hypsography (relief features), hydrography (water and drainage features), culture (man-made features), and vegetation.

Topographic Data

A term used to describe data that depicts the representation of a three-dimensional surface. The most common forms of topographic data are discrete elevation readings and contour data. Other forms of topographic data include regular and triangulated grid data bases that depict the surface and second-order surface data bases such as slope and aspect.

Topographic Error Checking

Process of ensuring that data is logically consistent, e.g., all polygons are closed, all arcs are connected to nodes, etc.

Topographic Map

A map which presents the horizontal and vertical positions of features; distinguished from a planimetric map by the addition of relief in measurable form. A topographic map usually shows the same features as a planimetric map but uses contours or comparable symbols to show mountains, valleys, and plains, and for hydrographic charts, symbols and numbers to show depths in bodies of water.

Topographic Mapping

Depicting three-dimensional surface characteristics on a two-dimensional display. The most common topographic maps portray elevation using contours juxtaposed with standard planimetric map features. A thematic version of contour maps shades between contour intervals to display areas falling within a range of elevation values. Second order topographic maps such as those depicting slope intensity are also common.

Topography

The features of the surface of the earth considered collectively as to form. A single feature, such as a mountain or valley, is termed a topographic feature. Topography is subdivided into hypsography (relief features), hydrography (water and drainage features), culture (man-made features) and vegetation.

Topological

(1)   Refers to properties of geometric figures such as adjacency that are not

altered by distortion as long as the surface is not torn.

(2)   Relating to the study of the properties of geometric configurations invariate under transformation by continuous mappings.

Topological Data Structure

A method for organizing spatial data bases so that all of the inherent connectivity and neighbor relationships depicted on a map are preserved. A topological data structure retains a minimum set of relationships between map data base elements allowing a user to determine which map segments connect to other specific map segments, what map areas are divided by a map line, and what map lines make up the complete boundary of a map area. Topological data structure refers to the mathematical theory used as the background for the design of the data base. The best known geographic data bases employing topological data structure are the GBF-DIME files of the U.S. Census Bureau and the Digital Line Graphs of the United States Geological Survey.

Topological Relationships

Refers to how data elements relate to each other within a data base, particularly to how a change to one element affects other elements.

Topological Structuring

(1)   Process of organizing data topologically so that the relationships and reference linkages are specified.

(2)   Process of mapping one-to-one that is continuous in all directions.

Topological Verification

Process of verifying the topological relationship between data elements.

Topology

A branch of geometrical mathematics which is concerned with order, contiguity, and relative position, rather than actual linear dimensions.

Torrens Registration System

A system whose basic principle is the registration of the title to land, instead of registering, as under the old system, the evidence of such title.

Torrens Title System

A system whose basic principle is the registration of the title to land, instead of registering, as under the old system, the evidence of such title. Upon the landowner's application, a court may, after appropriate proceedings, direct the

issuance of a certificate of title. With exceptions, this certificate is conclusive as to applicant's estate in land. After registration, all deeds and documents affecting the property are duly registered. This system was named after its author, Sir Robert Torrens. It was first introduced in South Australia in 1857.

Touch File

This is a spatial data base that describes those areas that are contiguous neighbors to a particular area. Touch files are used in spatial aggregation functions such as redistricting.

Township

A unit in rectangular original public land surveys that represents approximately 36 square miles (6 miles squared). In normal rectangular public land surveys, there are 36 sections in a township, a section being a 1-mile-square subset of a township. The term, Township, also refers to the north/south coordinate number assigned to each row of townships in an original survey. Each individual township is then referred to as a specified number of townships north or south of an origin line.

Track

A concentric ring on a disk upon which data is stored.

Tracking

A function in many information systems that follows a procedure from beginning to end. Tracking features in government are commonly used to manage procedures associated with the application for, and assignment of, permits for various land- and water-related activities. Features common in tracking systems include reminder and tickler functions that inform individuals of impending deadlines, the automated generation of correspondence, and features that can be used to evaluate the impact of proposed land activities. Local governments often develop tracking systems to manage many of the procedures associated with the local land development ordinance. Most tracking systems are designed around completing a transaction in an established maximum amount of time.

Tract

A statistical tabulation zone used by the Census Bureau in urbanized areas. A census tract is usually defined to contain approximately 4,000 individuals. Where populations increase substantially in an area from one census to another, tracts are often split.

Tract Inspection and Enforcement (TI/E)

A data base required by BLM personnel to identify onshore Federal lease operations and report their progress. BLM is mandated to inspect onshore

operations for compliance with development plans and environmental regulations. If infractions are identified, then corrective actions must be enforced by the inspectors.

Trailer Record

A record that appears at the end of a group of records (file) and contains pertinent data about the records in the file. A trailer is not considered to be part of the actual data contained in the file.

TRAING

A UMC (User Master Catalog) name assigned to special files set up for the training of users on the terminal.

Transformation

(1) The process of changing from one programming language to another or from one storage medium to another, as from magnetic tape to disk storage. A transformation might also involve changing from one type of hardware or software to another.

(2) Conversion of coordinates between alternative referencing systems.

(3) The process of projecting a photograph (mathematically, graphically, or photographically) from its plane onto another plane by translation, rotation, and/or scale change. When a photograph is transformed to a horizontal plane so as to remove displacement due to tilt, the process is termed rectification; however, relief displacement cannot be removed by this process.

Transitional

Existing in a state of change, or in an intermediate condition.

Translation

One of three common mathematical alterations performed on coordinate data files. Translation involves moving a map image to another position on the mapping frame. A translation, also referred to as an offset, is performed by adding constants to each ordered coordinate pair in a data base. Many translation or offsetting options are provided in both computer graphic software packages and plotting hardware devices.

Translation Rotation

The turning or moving of a body about a self-contained axis, as in the daily rotation of the earth; also, the turning of an instrument or part of an instrument.

Translator

An individual who communicates in both the world of resource management and the world of automation, and who can convey ideas to those who can communicate in only one world or the other.

Transmission

The sending of information to one or more locations or recipients.

Transaction Processing

A specialized type of on-line system designed to handle interactive-type applications that involve entering, retrieving, updating, and/or manipulating information normally located in a database. The nature of such a system tends to be highly user-oriented and provides fast response times. Events are entered at the time they occur instead of being held for processing at a later time.

Transparency

A mode in which control character recognition is "suspended," allowing any bit pattern to be transmitted without unexpected results; useful for transmitting non-alphanumeric data such as program codes, nonstandard codes, etc. Actually, the rules for control code recognition are changed and the number of control codes that are recognized is usually limited (sometimes to just Escape). Otherwise, once in transparency mode, there would be no out.

Transparent

(1)   A term applied to a computer program that, from external sources, appears unchanged.

(2)   A computer operation that occurs without the direct knowledge or supervision of a system operator. In many application systems, a number of processes occur in the background to support the overall function of a system. These operations are said to be transparent to the user.

Transportable

Term used to describe a computer program or data base that can be moved from one computer processing environment to another.

Transportation Planning System

A family of analytical routines supporting the evaluation of traffic patterns in an area based on data available for the vicinity. These systems provide a number of routines that support the construction of data bases commonly used by

transportation planners, including street network data bases that depict each specific segment of roadway in an area and the intersections between those segments. Procedures available in the systems then support the integration of demographic data about a community and physical characteristics of the roadway system. Transportation planning systems can be used for various functions such as projecting demands on the system into the future and assessing the impacts of a specific development on the overall roadway system. Transportation planning systems are being used more commonly by local governments to support the assessment of impact fees.

Trap Door

A set of instructions imbedded in the operating system. Anyone who knows about it can bypass normal security procedures to access computer files.

Traverse

A method of surveying in which lengths and directions of lines between points on the earth are obtained by or from field measurements and used in determining positions of the points. A survey traverse may determine the relative positions of the points which it connects in series; if tied to control stations on an adopted datum, the positions may be referred to that datum. Survey traverses are classified and identified in a variety of ways: according to methods used, e.g., an astronomical traverse; according to quality of results, e.g., a first-order traverse; according to purpose served, e.g., a geographical-exploration traverse; and according to form, a closed traverse.

Tree

(1)   An abstract hierarchical structure consisting of nodes connected by branches in which (a) each branch connects one node to a directly subsidiary node, (b) there is a unique node called the root that is not subsidiary to any other node, and (c) every node besides the root is directly subsidiary to exactly one other node.

(2)   A computer science data structure used to depict explicit relationships between data items in an application program. In general, tree structures are made up of a series of decision points, usually referred to as nodes. Based on a decision at a node, a program chooses from two or more specified elements. The result of each decision places the program at a new decision node or a termination point. In binary trees, each node has two exiting paths, usually referred to as the left and right paths. Because of the relational nature of spatial data bases, tree data structures are often employed in application programs that use certain types of spatial information. Network routine and surface modeling applications often employ some form of tree structure to improve the efficiency of their operation. Grid cell data applications also use trees to build explicit relationships between contiguous cells.

Trend Surface Analysis

A term used to describe methods of assessing and quantifying surface variations. This analytical procedure can be used to evaluate any phenomenon that changes across a surface. Many different statistical algorithms are used in trend analysis, ranging from simple plane-fitting regression routines to sophisticated best-fit polynomial estimation algorithms. Graphic display routines are by far the most effective way to present results of analyses, with three-dimensional surface maps being especially useful.

Triangulated Grid

An irregular grid cell data base that consists of a contiguous mesh of triangles. Each triangle is defined by three discrete, three-dimensional coordinates. The most common class of data organized into triangulated networks is elevation reading, though any Z value can be used. Each elevation triple can be assessed for its slope (angle of incidence for the plane defined by the coordinates) and aspect (direction of the sloping plane). In resource management applications, each triangle represents a portion of the earth's surface and can be assessed for atmospheric, surface, and subsurface phenomena related to it. Once all necessary attributes have been assigned to each triangle, models can be written to simulate the flow of phenomena through the network of cells. The most common use of triangulated grids is to model surface and subsurface phenomena related to the hydrologic cycle. By providing an unambiguous interpretation of slope and aspect, triangulated grids easily simulate overland flow and the movement of water through the primary drainage network (specific edges of a triangulated grid are estimates of basin ridges and the primary drainage network).

Triangulated Irregular Network

A data structure which describes a three-dimensional surface as a series of irregularly shaped triangles, usually used in connection with terrain modeling.

Triangulation

A method of surveying in which the stations are points on the ground at the vertices of a chain or network of triangles. The angles of the triangles are measured instrumentally and the sides are derived by computation from selected sides or bases, the lengths of which are obtained by direct measurement on the ground or by computation from other triangles. A triangulation system of limited width (generally that of one triangle), designed to progress in a single general direction, is designated arc triangulation, and the chain of triangles (or polygons composed of abutting or overlapping triangles) is called a triangulation arc. A network of triangulation designed to cover an area with abutting or overlapping triangles is designated area triangulation, and the resulting configuration is called a triangulation net.

Trojan Horse Attack

A program that looks like it performs some apparently useful function but that contains a hidden code; this code performs an unwanted, usually malicious, function. The Trojan Horse is a common way to spread computer viruses.

Troubleshoot

See "Debug".

Truecolor

In image display systems, the ability to assign individual light intensities to red, green, and blue guns in the display device, thus simulating the generation of a full-color display.

Truncate

To drop digits in a series, thus lessening precision. For example, the number 3.14159265, truncated to five figures, is 3.1415; this number, if rounded, would be 3.1416.

Turnaround Time

(1) The elapsed time between submission of a job to a computing center and the return of the results.

(2) In communications, the actual time required to reverse the direction of transmission from send to receive or vice versa when using a half-duplex circuit. For most communications facilities, time is required by line propagation and line effects, modem timing, and machine reaction.

Turnkey System

A system that consists of a bundled set of hardware and software that operates as a stand-alone, single-function computer system. Many automated mapping and spatial analytical systems operate as turnkey systems on dedicated minicomputer and/or microcomputer systems. Most turnkey graphics systems also require a predefined set of graphics hardware peripherals around which they are designed to operate.

Two-Dimensional Data

Areal data in two dimensions, such as northing-easting, latitude-longitude, etc.
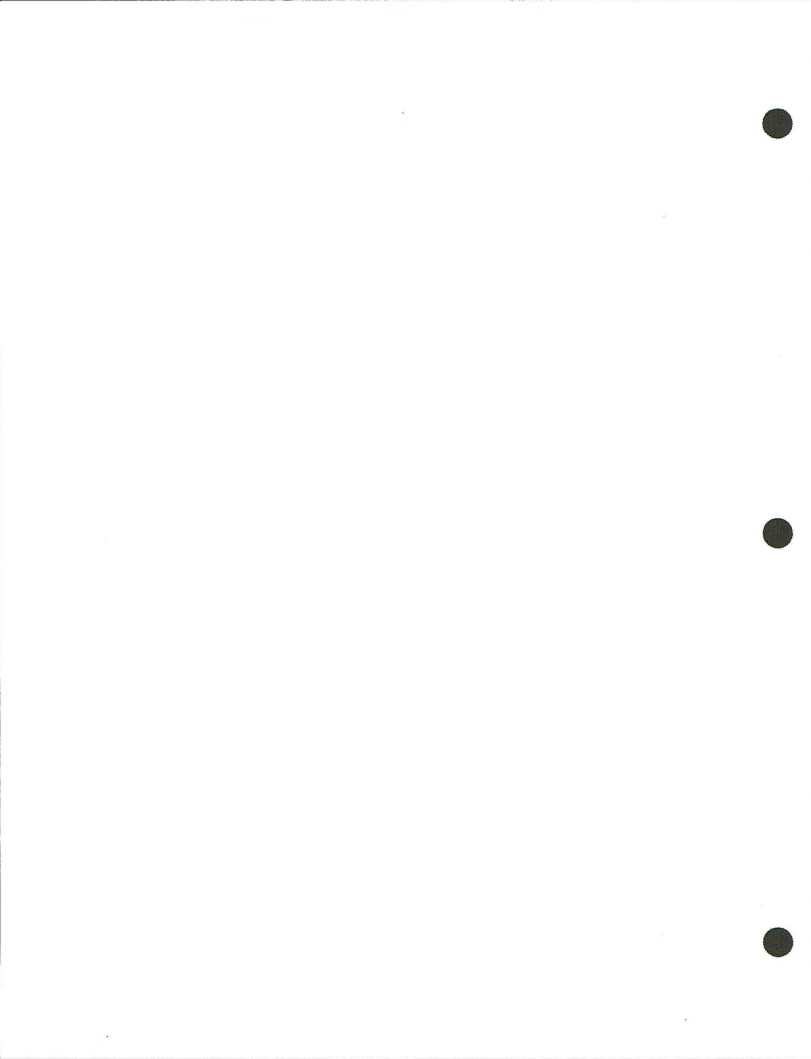
Unattended Operation

Transmission or reception without an operator.

ULTRIX

A version of the UNIX operating system distributed and maintained by Digital Equipment Corporation.

UNDO

Refers to the ability to retract a previous entry.

Undo Key

Special key (or combination of keys) that lets a user recover from a mistake; generally used to undo a delete command when significantly more information was deleted from the data base than was desired.

Uniform Grid

(1)   Square, rectangular, or hexagonal lattice grid coordinate system used for recording geographic data.

(2)   A network composed of two sets of uniformly-spaced straight lines intersecting at right angles.

Union

(1)   The set containing all the elements of two or more given sets, and no other elements.

(2)   The region containing all of the points in two or more regions or polygons. See also intersection.

Unit Agreement (UA)

A plan of development and operation for the recovery of oil and gas. Unit agreements are designed to properly conserve the natural resources of any oil or gas pool, field, or area covered.

Unit Test

A white-box test focused at the program module level that evaluates the module interface, local data structure, important execution paths, error-handling paths, and boundary conditions which affect the previous four items.

United States of America Standard Code for Information Interchange (USASCII)

Same as American Standard Code for Information Interchange (ASCII)

United States National Map Accuracy Standards

(1) Horizontal accuracy: For maps at publication scales larger than 1:20,000, 90 percent of all well-defined features, with the exception of those unavoidably displaced by exaggerated symbolization, will be located within 1/20 inch of their geographic positions as referred to the map projection; for maps at publication scales of 1:20,000 or smaller, 1/50 inch.

(2) Vertical accuracy: 90 percent of all contours and elevations interpolated from contours will be accurate within one-half of the basic contour interval. Discrepancies in the accuracy of contours and elevations beyond this tolerance may be decreased by assuming a horizontal displacement within 1/50 inch. Commonly referred to as Map Accuracy Standards.

Unity Transformation

A direct 1:1 correspondence (i.e., no transformation of coordinates).

Universal Data Link Control (UDLC)

A bit-oriented protocol developed by Sperry Univac.

Universal Transverse Mercator (UTM)

The Mercator cylinder projection first developed by Lambert in 1772 and analytically developed by Gauss (1882) and Kruger (1912). The Universal Transverse Mercator (UTM) is based on the Mercator projection and was specified in 1958 as being:

1. Six degree zones;
2. Clarke 1866 reference ellipsoid;
3. Length unit is the meter;
4. False Easting of 500,000 for each zone;
5. Latitude origin is the equator;
6. Longitude origin is the zone central meridian;
7. Scale factor at the central meridian is 0.9996.

The Geological Survey shows UTM zones and coordinate ticks on all map products 1:100,000 scale and larger and distributes its Digital Line Graph (DLG) in UTM coordinate space. The continental United States is covered by zones 10 through 19. UTM coordinates are Datum dependent.

Universal Transverse Mercator (UTM) Grid

A special case of the Transverse Mercator projection. It consists of 60 north-

south zones, each 6 degrees wide in longitude.

UNIX

A hardware-independent operating system language developed by Bell Laboratories and marketed by AT&T. UNIX, in various adaptations and versions, is widely used in computers ranging from microcomputers to large mainframes. This particular operating system is written in the C programming language. Its portability across different computers and its support of useful programming techniques such as multi-tasking are but two of its many useful features. Various versions are marketed under a variety of names. Its use has substantially increased in recent years. Efforts are underway to standardize UNIX.

UNIX System V

A version of the UNIX operating system standardized by AT&T.

UNIX 4.2 BSD (Berkeley Standard Distribution)

A version of the UNIX operating system standardized and distributed by the University of California, Berkeley.

Unsolicited Proposal

A proposal submitted by a vendor without an agency's request. However, someone in the agency is usually aware of the vendor's plans. These proposals should be treated as any other sole-source procurement.

Updating

Refers to the capability to make changes or add new information to existing data.

Uploading

Procedures that support the movement of a data set from one machine to another. The most common use of the word *upload* describes the movement of data from a small, special-purpose computer (desk-top microcomputer) to a larger host computer.

Usability

The effort required to learn, operate, prepare input for, and interpret output of a program.

Use Plat

A subdivision of status plat data that is used when case activity levels are too

complicated for easy readability on one plat. Use plats are generated by case type group, e.g., oil and gas or coal. Use plats are developed from the same composite cadastral surveys that are used for Master Title Plats (MTPs).

User

Any individual or organization that uses a given resource (ADP services, radio network telephone systems, etc.).

User Class

A group of users categorized by how it will use a particular system to accomplish its business.

User Identification (User ID)

A unique eight-character code assigned to a terminal user to identify that user to the computer and to do billing.

User Interface

Method by which a human operator communicates with various database and applications modules.

User Master Catalog (UMC)

A master listing identifying all users by a special code assigned to each.

Utility Facility Management System

A family of routines that supports the creating, editing, managing, and displaying of information related to a utility facility network in a local government or the private sector. Most utility facility systems provide a sophisticated inventory data base for describing the physical characteristics of a utility. Many systems also provide analytical procedures that support the development of an intelligent utility facility network data base depicting the relationships between specific segments of the utility system and the junctures at which segments meet. These facility network systems are often used for applications such as load forecasting and system impact assessment. Many modern facility management systems also provide the ability to integrate the utility inventory system with a base map depicting the features. This mapping facility can come in many forms, but most often it supports the production of standard system base maps, the retrieval of facility inventory data based on spatial selection criteria, and procedures that support the extension and update of a facility network data base using the relationships depicted in the automated base map (connectivity).

Utility Program

A subsystem of an operating system that is capable of performing support functions such as formatting disks, backing up files, deleting files from disks, and renaming files.

Validation

The process of evaluating software at the end of the software development process to ensure compliance with requirements.

Validity Examination

The portion of a program that validates data.

Value

(1)   Characters that are assigned to a data item. For example, each field in a record will contain a value, even if that value is only a string of blank characters. A value does not have to be a numeric quantity.

(2)   A fixed quantity. For example, the minimum and maximum range values are the minimum and maximum numeric values that a number can have.

Variable

(1)   A quantity that can assume any of a given set of values.

(2)   In programming, a character or group of characters that refers to a value and, in the execution of a computer program, corresponds to an address.

Variable-Length Record

A type of record whose length may vary. Fixed-length records require each record in a file to be the same length as all other records in the file. Variable-length records provide the system analyst and programmer with more flexibility and also tend to utilize less storage space than fixed-length records, since only the portion of the record that actually contains useful data needs to be stored.

Variant Spelling

An optional spelling for a particular feature name. Variant spellings often cause significant problems in address matching situations. It is important that real time address access systems support the ability to recognize variations in the accepted spelling of certain proper words in addresses.

Vector

(1)   A directed line segment, with magnitude commonly represented by the coordinates for the pair of end points. Vector data refers to data in the form of an array with one dimension.

(2)   A type of geographic data base where map points, lines, arcs, and areas are represented by an actual or logical set of coordinates that, if connected, would form the features depicted on a normal map. Vector

forms of data storage differ from raster forms of storage, where each discrete location in a lattice of locations is described. Most computer mapping and computer-aided design (CAD) systems use vector data structures in one form or other. Spatial analytical software packages, however, employ both raster and vector forms of storage, depending on the application.

Vector Data

In MOSS, data composed of (x,y) coordinate representations of locations on the earth, taking the form of single points, strings of points (lines), or closed lines (polygons).

Vector Processing

A method whereby maps are stored in digital form as strings of (x,y) coordinates and the map information is represented by points, lines, or polygons. Vector processing is more intensive than cell processing. Visual representation is similar to actual maps.

Vector Refresh Display

Cathode ray tube on which the image is displayed as a vector and which must be refreshed by a new pass of the electron beam about 30 times or more a second.

Vector-to-Raster Conversion

Procedures that support the conversion of coordinate string forms of geographic data (vector) to grid cell forms of data (raster). The most common use of vector-to-raster conversion procedures is in the creation of data bases for turnkey, grid cell, and natural resource geographic information systems. These procedures allow thematic data to be digitized using normal map design procedures and then converted to grid cell form for the analytical functions available in the GIS package.

Vectorization

Term often used to describe raster-to-vector conversion procedures.

Vehicle Assignment

A function common in emergency dispatching systems where a particular call for service is assigned to individual vehicles based on a particular set of criteria. Many vehicle assignment systems must function in a real time environment (police and fire systems); however, many other vehicle assignment procedures are designed to operate only as needed and often provide procedures that optimally assign vehicles to calls on the basis of predefined productivity assumptions.

Vehicle Routing

Procedures that use a data base of the local roadway system to determine the best route from one location in an area to another. Vehicle routing systems use algorithms that consider variables such as the physical characteristics of a road, the traffic characteristics of the road (theoretical and actual), and the location of barrier routes that should be avoided. Routing systems are available to assess real-time route decisions (routing a police vehicle to a site) as well as the long-range, optimal routing of regular service functions such as school buses and sanitation vehicles. Most vehicle routing routines require a road segment data base such as a geobased file that retains relationships between individual street segments and intersections.

Velocity

Term used to describe the rate that a particular graphic device (pen-style) moves the writing head of a plotter from one location to another. Velocity is most often used to describe the maximum rate available to a plotting device. Most quality plotting devices support a variable maximum velocity that can be chosen based on the type of pen and drawing material.

Verification

(1)   The process of determining whether or not the products of a given phase of the software development cycle fulfill the requirements established during the previous phase. See also Validation.

(2)   Formal proof of program correctness.

(3)   The act of reviewing, inspecting, testing, checking, auditing, or otherwise establishing and documenting whether or not items, processes, services, or documents conform to specified requirements.

VERIFY

A command verb used under the Editor subsystem to print on the user's terminal the results of all text-altering commands.

Vertex

The highest point where two tangents to a circular curve intersect. The vertices of a great circle are the points nearest the poles.

Vertical Control Point

An earth location that has an accurate vertical coordinate position estimated for it. Vertical coordinates are the elevation values at a particular earth location. Control points having vertical control will not necessarily have horizontal control

for the same location.

Video Card

A circuit board that allows various types of video devices to communicate with the system card.

Video Digitizer

A device that interfaces with a standard or extended video camera to provide a moderate to low resolution graphics data capture device. Most video digitizers on the market today are designed primarily as image capture devices for transferring pictures to video or laser disc storage devices. A major shortcoming of video digitizers for capturing map images is that most video systems have extremely poor repeatability. Many of the video digitizing systems interface with small computers to provide the editing and line- following options required for the conversion of map images to meaningful forms.

Videotext

A system that converts character digital data to signals that are interpretable on standard television equipment. The term originally applied to a British system designed to transmit messages. Videotext is now one of the standard communication options offered in data communication networks and information management services.

Viewport

(1)   A rectangular frame with a specified size and location on the screen of an interactive graphics system within which a rectangular portion, or window, of a map is displayed. See also Window.

(2)   That portion of the graphic display device currently being written to.

Virtual Map

A concept in automated mapping systems that supports the storage and maintenance of a map that represents a complete surface of an area. Most early automated mapping systems allowed the development of data sets for relatively small areas. Most modern mapping systems provide a continuous or "virtual" mapping surface, allowing the development of a map that represents extremely large areas. In modern mapping systems, the only limitation for the surface being mapped is the size of the data base; many spatial data sets are extremely large.

Virtual Memory

(1)   The storage space that may be regarded as addressable main storage by the user of a computer system in which virtual addresses are mapped

into real addresses. The size of virtual memory is limited by the addressing scheme of the computer system and by the amount of auxiliary storage available; not by the actual number of main storage locations. Synonymous with virtual storage.

(2)   A memory management scheme wherein a program's code is divided into segments, and these segments, along with a dictionary of segment descriptors, are kept on a memory extension device such as a disk. Segments are loaded into the main memory as needed for execution, in a manner entirely transparent to the programmer.

Virtual Storage System

A particular family of computers made by Wang Labs, Inc. These systems were introduced in the mid-1980's and targeted at the mini-computer market. Sizes range from the VS-5 (1-2 users) to very large minicomputers supporting several hundred users and devices.

Virtual Telecommunications Access Method (VTAM)

An IBM communications I/0 control programming method that offers advances over previous IBM techniques such as BTAM and TCAM, although it has not replaced these methods.

Virus

A program that incorporates copies of itself into the machine code of other programs. When these programs are used, it wreaks havoc.

Voice

Electronic pulses that can be interpreted into sound by an appropriate output device. Electronic images or signals sent through common carrier phone lines are examples of voice data.

Volume

(1)   That portion of a single unit of storage which is accessible to a single read/write mechanism, for example, a drum, a disk pack, or part of a disk storage module.

(2)   A recording medium that is mounted and demounted as a unit, for example, a reel of magnetic tape, a disk pack, or a data cell.

Walk-Through

(1)   A review process in which a designer or programmer leads one or more members of the development team through a segment of design or code that he or she has written. The other team members ask questions and make comments about technique, style, possible errors, violation of development standards, and other problems. Contrast with inspection.

(2)   A peer group review of any product. Typically informal with a small group, this review can occur at any point in the software development life cycle.

Warranty

A real covenant by the grantor of lands, for himself and his heirs, to warrant and defend the title and possession of the estate granted to the grantee and his heirs whereby, either upon voucher or judgment in the writ of the *warrantia chartoe*, and upon the eviction of the grantee by paramount title, the grantor is bound to compensate him with other lands of equal value.

Warranty Deed

Deed which contains a covenant of warranty.

Waste Management Program

A program that defines procedures, standards, and criteria for the generation, transportation, and disposal of hazardous wastes.

Weighting

Process of systematically increasing the value of a particular data element or elements so as to give it/them more significance in the analysis or calculations.

Well Log Analysis

A special program that reads a digital well log and allows geoscientists to pick specific data values and enter them automatically in the system.

Western Oregon Digital Database (WODDB)

A project in Oregon to develop land use plans on five districts (7 million acres), applying the BLM LIS concept by using digitization and GIS technology.

White-Box Testing

Examination of some aspect of a fundamental unit by exercising all relevant internal structures and procedures. For software, logical paths through the software are tested by providing test cases that exercise specific sets of conditions and/or loops. Contrast with Black-Box Testing.

Wilderness Study Area (WSA)

An area identified as having potential for wilderness as defined in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 890; 16 USC 1131), and which is to be studied in accordance with other sections of the above-cited Act.

Winchester Drive

A disk drive that can be installed in the electronics unit of the Wang Professional Computer, providing nonremovable storage media.

Window

(1)   Rectangular frame with a specified size and location on the screen of an interactive graphics system, and within which a rectangular portion, or window, of a map is displayed.

(2)   A portion of a cathode ray tube (CRT) or other type of display. The display is broken into separate viewing areas (windows), each of which shows something different. Some software products permit several different processes to occur in an "integrated" way, for example a spread sheet and a graphics display. Windows would allow, in this example, the display of the results of the two procedures at the same time. The desk-top manager approach uses windows, as do the popular electronic spread sheets.

(3)   A user-specified geographic boundary to a data set.

Wire Printer

See Matrix Printer.

Withdrawal

A removal or withholding of public lands by statute or Secretarial Order from the operation of some or all of the public land and mineral laws.

Word

(1)   A fixed arrangement of bits, bytes, or characters treated by a computer's control processing unit as a single unit of data. A word is the data contained in the smallest addressable portion of a computer's storage (i.e., it is the smallest unit of data that the computer can access and process with a single instruction).

(2)   As used in message traffic, five information characters and one space. This results in a simple conversion from words per minute (wpm) to characters per second (cps); divide by 10. If the code structure is 10 bits per character, which is common among typewriter terminals, "wpm" and "bps" are numerically equivalent.

Word Length

The number of bits or other characters in a word; equal to four or six 8-bit bytes.

Word Processing

An application that permits one to write, edit, rewrite, and reuse textual information.

Word Processor

An electronic text-editing system that enables one to compose and work with material on a video display screen before printing it.

Work Station

The equipment contained in the physical area in which an operator works, including a monitor, keyboard, and possibly, communications equipment.

Workfile

A file created on a temporary basis during processing to hold data. A work file may be set up by copying another file.

Worm

A program that invades a work station and disables it.

Write

(1)   To record data in a storage device or on a data medium. The recording need not be permanent, as in the writing on a cathode ray tube display device.

(2)   Permission that allows a user to write to a file created by another user.

Write-Protect Slot

A slot located on the side of a diskette that provides a way of protecting
information on the diskette. When the slot is open information can be written
onto the diskette; when the slot is covered, information cannot be written onto
it.

X.3

A CCITT[1] recommendation defining the internal characteristics of a network Packet Assembler/Disassembler (PAD).

X.21

A CCITT[1] recommendation defining the physical layer protocol that specifies the characteristics of a general purpose digital interface between a DTE and a DCE for synchronous operation on public data networks.

X.25

(1)   A collective CCITT[1] recommendation for the protocol of the physical, data link, and network layers of the OSI Reference Model. It specifies the protocols for packet mode terminals which would be capable of supporting several virtual circuits, permanent virtual circuits, or datagram service.

(2)   An internationally used system of communications protocols developed by CCITT[1]. This standard gives users a common network for linking computers and peripheral devices from many vendors by sharing a common technology.

X.25 network

A wide-area, packet-switched network that uses the CCITT[1] X.25 recommendation to define its operating characteristics.

X.28

A CCITT[1] recommendation that defines the interface between asynchronous interactive terminals and a X.25 network Packet Assembler/Disassembler (PAD).

X.29

A CCITT[1] recommendation that defines the procedures for exchange of data and control information between the PAD and either the network DTE or another PAD.

[1] CCITT refers to the International Telegraphy and Telephony Consultative Committee (abbreviated as CCITT), which is the standards-writing organization for international telephone carriers.

X.75

A CCITT[1] recommendation for an internetworking protocol which builds on the X.25 protocol, defining the signalling system between two packet switched networks.

X.400

A draft CCITT[1] recommendation for the definition of hardware independent electronic mail protocols, so that heterogenous networks can operate as a single electronic mail system.

XENIX/AT

The personal computers that will be used for ORACLE training to solve business and analytical work. Some management reports and statistics will be generated on this system.

X-Windows

Public domain standard developed by MIT to manage the graphical user interface; made up of windows, icons, buttons, etc.

Xerox Telecommuniations Network (XTEN)

A nationwide wideband network proposed by Xerox for voice, high-speed printing, and teleconferencing. Development efforts ceased in 1981.

---

[1] CCITT refers to the International Telegraphy and Telephony Consultative Committee (abbreviated as CCITT), which is the standards-writing organization for international telephone carriers.

YIQ

Identifies the color component signals used in broadcast TV. The Y signal is the luminosity. The chromaticity value is the sum of two orthogonal (right-angle) vectors, I and Q. Q stands for quadrature, the property of being orthogonal to I in this case.
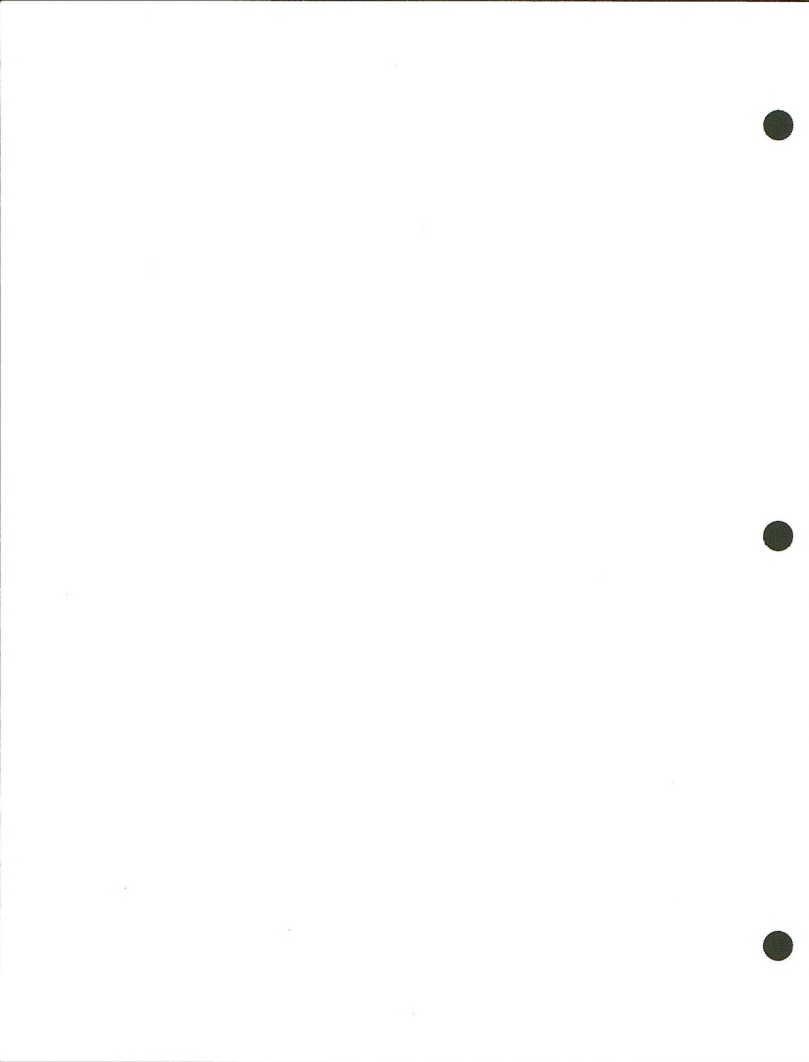
Z-Value Data Points

Data points providing a value perpendicular or normal to a specified surface (e.g., elevation).

Zoom

(1) The ability of a user to enlarge a part of a screen graphic in order to see finer detail.

(2) In MOSS, a data display command which allows the user to magnify a portion of the map or graphic display specified, using the WINDOW command or a terminal hardware function.

(3) In MAPS, a data display command which allows the user to magnify a portion of the current viewing window.
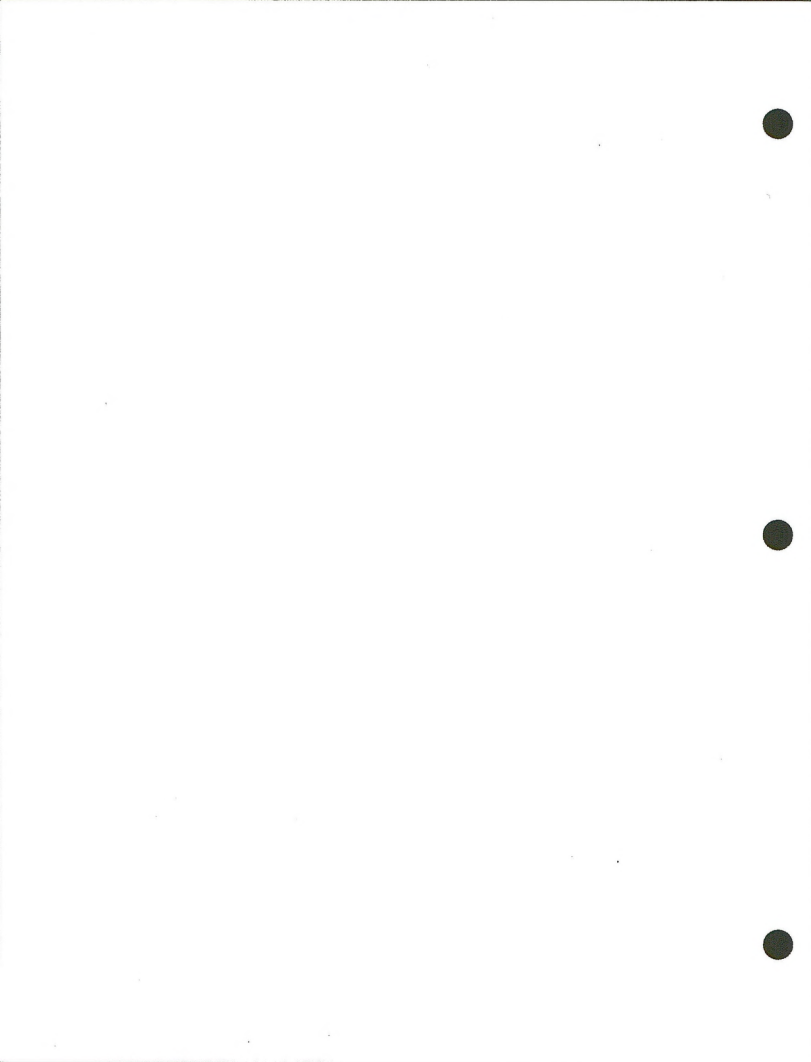
123 - Lotus 123

A/D - Analog to Digital

A/N - Alphanumeric

AAD - Alternatives Analysis Document

AAES - American Association of Engineering Societies

AAF - Adaptation Adjustment Factor

AALRS - Alaska Automated Land Records System

AAM - Assistant Area Manager

AB - Answer Back

ABC - Airborne Control (Cadastral Survey)

ABEL - Advanced Boolean Expression Language

ABLE - Atlas-Based Language Extension

ABO - Abbreviated Output

AC - Alternating Current

ACAP - Analyst Capability

ACE - Automatic Computing Engine

ACEC - Area of Critical Environmental Concern

ACF - Advanced Communication Function

ACIA - Asynchronous Communication Interface Adapter

ACK - Acknowledge

ACL - Advanced CMOS Logic

ACLDS - Automated Coal Lease Data System

ACM - Association for Computing Machinery

ACMC - Area of Critical Mineral Concern

ACQ - Acquired

ACR - Automatic Character Recognition

ACSL - Advanced Continuous Simulation Language

ACT - Advanced Color Technology

ACTS - Advanced Communications Technology Satellite

ACU - Analog Computational Unit

ACWP - Actual Cost of Work Performed

AD - Assistant Director

ADAPSO - Association of Data Processing Service
              Organizations

ADC - Address Decoder Circuit; Analog-to-Digital Converter

ADD - Addition

ADDA - Assistant Director, Data Administration

ADEE - Automated Design and Engineering for Electronics

ADEMP - Automated Data Equipment Modernization Project

ADI - Alternate-Digit Inversion

ADLC - Advanced Data-Link Controller

ADM - Associate District Manager

ADMA - Advanced Direct Memory Access

ADP - Automatic (or Automated) Data Processing

ADPE - Automated Data Processing Equipment

ADS - Automated Digitizing System

ADSI - Adapted Delivered Source Instructions

ADX - Asymmetric Data Exchange

AEA - American Electronics Association

AEC - Atomic Energy Commission

AEDCAP - Automated Engineering Design Circuit Analysis Program

AEXP - Applications Experience

AF - Audio Frequency

AFC - Automatic Frequency Control

AFI - Automatic Filer Test; Average Fraction of Units Inspected

AFILMS - Automated Federal and Indian Leasable Minerals System

AFFIRMS - Administrative and Forest Fire Information Retrieval Management System

AFMS - Automated Fleet Management System

AFO - All Field Offices (or Officials)

AFS - Auditing and Financial System (MMS); Alaska Fire System

AFT - Available File Table

AG/FC - Address Generator and Flow-Controller

AGC - Automatic Gain Control

AGILE - Animation of Graphics Images using List Execution

AGREE - Advisory Group on Reliability of Electronic Equipment

AHPL - A Hardware Programming Language

AI - Artificial Intelligence

AIDA - Advanced Integrated Circuit-Design Aids

AIRS - Automated Inspection Records System

AIS - Alarm Indication Signal

AIX - Advanced Interactive Executive

ALBO - Automatic Line Buildout (network)

ALC - Automatic Level Control; Automatic Limiting Control; Automatic
      Load Control

ALDEP - Automated Layout Design Program

ALDS - Automatic Lightning Detection System

ALF - Automatic Line Following

ALMS - Automated Lease Management System

ALMRS - Automated Land & Mineral Record System

ALT - Alternate

ALU - Arithmetic and Logic Unit

AM - Address Modifier; Amplitude Modulation; Area Manager

AME - Asynchronous Modem Eliminator

AMP -   Allotment Management Plan; Access Module Processing;
           Automatic Multipattern

AMPS - Advanced Mobile-Phone System

AMS -   Analog-Multiplexing System; American Mathematical
                Society; Automated Mapping System; Analytical
                Mapping System; Americas Management Systems,
                Inc.

AMT - Advanced Matrix Technology

ANSI - American National Standards Institute

AO - Administrative Officer; Authorized Officer; Area Office

AOQ - Average Outgoing Quality

AOQL - Average Outgoing Quality Limit

AOS - Advanced Operating System

AOS/VS - Advanced Operating System/Virtual Storage

AP - Application Program

APC - Automatic Phase Control

APD - Application for Permit to Drill

APHIS - Animal Plant Health Inspection Service

APL - A Programming Language; Acceptable Productivity Level

APR - Agency Procurement Request

APSE - Ada Programming Support Environment

APT - All-Purpose Terminal; Automatic Programming Tools

APU - Auxiliary Power Unit

AQL - Arriving Quality Level

ARC - Attached Resource Computer

ARD - Automated Resource Data

AREX - Array Processor Run-Time Executive

ARO - After Receipt of Order

ARR - Automatic Repeat Request

ARRS - Automated Resource Requirements Study

ARS - Automatic Remote Switch

ART - Automated Reasoning Tool; Average Response Time

ARTS - Automatic Remote Tracking Station

ARV - American Revised Version

ASA - American Standards Association

ASAP - Automated System Acquisition Processing; As Soon As Possible

ASCII - American Standard Code for Information Interchange

ASD - Associate State Director

ASI - Asynchronous/Synchronous Interface

ASIC - Application-Specific Integrated Circuit

ASK - Amplitude-Shift Keying

ASLD - Arizona State Land Department

ASP - Advanced Signal Processor; Advanced System Platform; American
Society of Photogrammetry

ASPN -   Abbreviation for Trade Name software ASPEN II; it does
not decode as an acronym.

ASTM - American Society for Testing and Materials

ASU - Automatic Switching Unit

ASV - American Standard Version

AT - Abort Timer; Advanced Technology; Analytical Triangulation

ATE - Automatic Test Equipment

ATG - Alcatel Thomson Gigadisc; Automatic Test Generation

ATPG - Automatic Test-Program Generation

AutoCad - Automated Computer Aided Drafting

AutoMap - Automatic Mapping System

AV - Audio/Visual; Availability

AVC - Automatic Volume Control

AWG - American Wire Gauge

AWP - Annual Work Plan

B&S - Browne and Sharpe (wire size)

BA - Basic Agreement

BAFO - Best and Final Offer

BAI - Basic-Access Interface

BAN - Bureau-Assigned Number

BASIC - Beginners' All-Purpose Symbolic Instruction Code

BBS - Bulletin Board System

BCC - Block Check Character

BCD - Binary-Coded Decimal

BCI - Broadcast Interface

BCWP - Budgeted Cost of Work Performed

BCWS - Budgeted Cost of Work Scheduled

BDA - Bureau Data Administrator

BDL - Board Description Language

BDR - Build Design Review

BEHAVE - Fire Behavior Modeling

BER - Bit Error Rate

BERT - Bit Error-Rate Testing

BERTS - Bit Error-Rate Test Set

BEV - Billion Electron Volts

BIA - Bureau of Indian Affairs (U.S. Department of the   Interior)

BIFC - Boise Interagency Fire Center

BIFET - Bipolar Field-Effect Transistor

BILBO - Built-In Logic Block Observers

BIOS - Basic Input Output System

BIST - Built-In Self-Test

BISYNC - Bisynchronous Transmission

BIT - Binary Digit

BITE - Built-In Test Equipment

BLER - Block Error Rate

BLERT - Block Error-Rate Testing

BLM -   Bureau of Land Management (U.S. Department of the
            Interior)

BM - Bureau of Mines (U.S. Department of the Interior)

BMC - Burst Multiplexer Channel; Bubble Memory Controller

BMP - Best Management Practice

BMT - Bureau Management Team

BOB -   Bipolar Offset Binary; Breakout Box; Bureau of the Budget

BOM or BoM - Bureau of Mines (U.S. Department of the Interior)

BOP - Bipolar Operational Power Supply

BOR or BoR -   Bureau of Reclamation (U.S. Department of the
                 Interior)

BPI - Bits Per Inch

BPM - Beats Per Minute

BPS - Bits Per Second; Bureau Planning System

BRADMAP - Bradford Mapping System

BRASS - Bonus and Rental Accounting Support System (MMS)

BSA - Burroughs Sync/Async Mode

BSAM - Basic Sequential-Access Method

BSC - Beam-Steering Computer; Bisynchronous Controller

BSD - Berkeley Standard Distribution

BSE - Buried Storage Electrode

BSF - Back-Surface-Field

BSS - Bond and Surety System

BSU - Bubble Storage Unit

BTAM - Basic Telecommunications Access Method

BTL - Board Test Language

BUS - Basic Utility System

BW - Bandwidth

BWO - Backward-Wave Oscillator

BY - Budget Year

C/V - Capacitance/Voltage (ratio)

CA - Communitization Agreement; Cooperation Agreement; Capability Analysis

CAC - Computer-Aided Calibration

CAD -Computer-Aided Design; Computer Automated (or Aided) Drafting; Computer-Aided Dispatching

CAD/CAM - Computer Automated Drafting/ Mapping System; Computer-Aided Design/Computer-Aided Manufacturing

CADA - Computer-Aided Design and Analysis

CADAM - Computer-Graphics-Augmented Design and Manufacturing

CADD - Computer-Aided Design and Development

CADF - Commuted-Antenna Direction Finder

CAE - Computer-Aided Engineering

CAF - Conversion Adjustment Factor

CAI - Computer-Aided Inspection; Computer-Aided Instruction

CALLM - Call Module

CAM -   Computer-Aided Manufacturing; Computer Aided- Mapping

CAN - Cancel

CANDE - Command and Edit

CAP - Communications Adapter Plus

CAPP - Computer-Aided Process Planning

CASE - Computer-Aided Software Engineering

CAT -Cable Analyzer/Tester; Computed Axial Tomography; Computer-Aided Testing; Configuration Analysis Tool

CAU - Complex Arithmetic Unit

CBD - Commerce Business Daily

CBDS - Circuit-Board Design System

CBE - Computer-Based Education

CBI - Complementary Binary; Computer-Based Instrumentation

CBX - Computerized Branch Exchange

CC - Constant Current

CCB - Change Control Board

CCD - Charge-Coupled Device; Census County Division

CCIF - International Telephone Consultative Committee

CCIS - Common Channel Interoffice Signaling

CCITT - International Telegraphy and Telephony Consultative Committee

CCP - Console Command Processor

CCS - Center Core System; Common Command Set

CCSA - Common Control Switching Arrangements

CCTV - Closed-Circuit Television

CCW - Cloth-Covered Wire; Counterclockwise

CD - Change Directory (MS-DOS command); Compact Disc

CDA - Cost Driver Attribute

CDBFR - Common Data Buffer

CDC - Constant Duty Cycle; Control Data Corporation

CDF - Cumulative Distribution Function; Contractor Development Facility

CDFFC - Controllable-Displacement Factory Frequency Changer

CDI - Control Document Index; Collector-Diffusion Isolation

CD-I - Compact Disk Interactive

CDL -Computer Description Language; Computer Design   Language

CDN - Computer Distribution Network

CDR - Critical Design Review

CD-ROM - Compact Disc Read-Only Media

CD-RTOS - Compact Disc Real-Time Operating System

CE - Categorical Exclusion

CEP -Circular Error Probability; Compression/Expansion   Processor

CER - Cost Estimating Relationship

CES - Consumer Electronics Show

CF - Center Frequency; Central Files

CFB - Cipher Feedback

CFM - Cubic Feet Per Minute

CFR - Code of Federal Regulations

CFT - Cray Fortran Compiler

CG - Computer Graphics

CGA - Color Graphics Adapter

CGI - Computer Graphics Interface

CGIS -   Canada Geographic Information System (Lands Directorate,
                Environment Canada, Ottawa)

CHIT - Computerized Handheld Industrial Terminal

CHR - Computer Hours

CI - Configuration Item; Combined Index

CICS - Customer Information Control System

CIDF - COM-Interchange Description Format

CIE - Computer-Integrated Engineering

CIEE - Computer-Integrated Electronic Engineering

CIF - Caltech Intermediate Form

CIIL - Control Interface Intermediate Language

CIM - Computer Input from Microfilm; Computer-Integrated Manufacturing

CIPS - Canadian Information Processing Society

CIR - Color Infrared

CISC - Complex-Instruction-Set Computer

CL - Current Loop

CLARI - Colorado Land Use and Environmental Resources Inventory

CLB - Configurable Logic Block

CLDS - Coal Lease Data System

CLEF - Component Level Estimating Form

CLI - Command Line Interpreter

CLIC - Current-Loop Interface Converter

CM - Current Member; Cyclically Magnetized

CMA - Cooperative Management Agreement

CMAS - Custom Modular Assembly System

C-MEM - Coefficient-Memory

CMI - Computer-Managed Instruction

CML - Current-Mode Logic

CMR - Common-Mode Rejection

CMRR - Common-Mode Rejection Ratio

CMV - Common-Mode Voltage

CN - Communications Network

CNC - Computerized Numerical Control

CO - Contracting Office; Collection Officer

COAM - Company Operated and Maintained Network

COAR - Contracting Officer's Authorized Representative

COARDATABASE -   Contracting Officer's Authorized Representative
                      Dbase

COB - Complementary Offset Binary; Close of Business

COBOL - Common Business-Oriented Language

COCOMO - Constructive Cost Model

CODASYL - Conference on Data Systems Languages

COGO - Coordinate Geometry

COLMAP - Color Map (U.K. 1966 Census Analysis)

COM - Computer Output Microfilm

COOP - Continuity of Operations Plan

COP - Coefficient of Performance

COR -   Contracting Officer's Representative; Carrier-Operated Relay

COS -   Code-Operated Switch; Cray Operating System;
             Cartographic Output System

COSA - Continuity of Services Agreement

COSATI - Committee on Scientific and Technical Information

COTS - Commercial Off-The-Shelf

CP - Control Processor

CP/M - Control Program for Microcomputers

CPDF - Central Processing Data File

CPE - Circular Probable Error; Customer Premise Equipment

CPI - Characters Per Inch

CPLX - Product Complexity

CPM -   Cycles per Minute; Critical Path Method; Complex Phasor
             Modulator

CPS -Characters per Second; Cycles per Second; Computerized Phone
     System

CPU - Central Processing Unit

CR - Critical Region; Case Recordation; Carriage Return

CRAM - Card Random-Access Memory

CRC -   Computer Remote Control; Cyclic Redundancy Check

CRM - Cultural Resource Management

CRMP - Cultural Resources Management Plan

CRT - Cathode Ray Tube

CRTC - Cathode Ray Tube Controller

CS - Control Strobe; Chain Selector

CSA - Canadian Standards Association

CSAR - Computer System Acceptance Review

CSB - Complementary Straight Binary

CSC -Computer Sciences Corporation; Computer Software Component

CSCI - Computer Software Configuration Item

CSDC - Circuit-Switched Digital Capability

CSM - Cost-Schedule-Milestone Chart

CSMA/CD - Carrier-Sense Multiple Access with Collision Detection

CSMP - Continuous System-Modeling Program

CSMR - Common Software Module Repository

CSP - Continuous-Sampling Plans

CSU -   Channel Service Unit; Customer Service Unit

CT - Computer Tomography; Center Tap

CTB - Cable Termination Box

CTC - Complementary 2's Complement; Counter/Timer Circuit; Cluster Terminal Controller

CTL - Process Control Type Project

CTR - Current Transfer Ratio

CTSS -   Compatible Time-Sharing System; Cray Time-Sharing System

CTT - Counter-Timer Trigger

CTU - Communications Terminal Unit

CUT - Code and Unit Test Phase

CV - Constant Voltage

CVS - Content Verification System

CVT - Constant Voltage Transformer

CW - Clockwise; Continuous Wave

CY - Calendar Year

D & F - Determination and Findings

DBIII - Data Base III

D/A - Digital to Analog

D/CAS - Data Cassette

D/P - Data Base Size/Program Size

D/S - Digital-to-Synchro

DA - Data Administrator

DAA - Data Access Arrangement; Direct Access Arrangement

DAC - Data Acquisition and Control; Design Automation Conference; Digital-to-Analog Converter

DACS - Data Acquisition and Control Subsystem

DAF - Data Acquisition Facility

DAM - Direct-Access Method

DAP - Distributed-Array Processor

DAR - Defense Acquisition Regulations

DAS - Digital Analysis System; Data Acquisition System

DASD - Direct Access Storage Device

DASS - Design Automation Standards Subcommittee

DAV - Data Available; Data Valid

DAX - Data Acquisition and Control

DB - Data Broadcast

dB - Decibel; dBase

DBA - Decibels-Adjusted; Data Base Administrator; Doing Business As

DBM -   Data Base Management; Data Base Manager; Decibels-above or below 1 Milliwatt

DBMS - Data Base Management System

DBTG - Data-Base Task Group

DBV - Decibels-Voltage

DC - Direct Current

DCA - Distributed Communications Architecture

DCD - Data Carrier Detect

DCDB - Data Collection Data Base (relates to the GCDB)

DCE - Data Communications Equipment

DCNA - Digital Communications Network Architecture

DCO - Digital Central Office

DCP - Digital Control Programmer

DCS -Digital Code Squelch; Defense Communication System;
      Distributed Control System

DCU - Data Control Unit

DD - Data Dictionary; Due Date; Duplex Drive

DDA - Declining Deposit Accounts

DDC - Direct Digital Control

DDCMP - Digital Data-Communications Message Protocol

DDD - Digital Diagnostic Diskette; Direct Distance Dialing

DDL -Digital System Design Language; Data Description Language

DDS -Dataphone Digital Service; Digital Data Service; Direct Distance
      Dialing; Direct Digital Synthesis

DDX - Distributed Data Exchange

DE - Data Element

DEC - Digital Equipment Corporation

DED - Data Element Dictionary

DEF - Data Evaluation Facility; Data Entry Facility

DEIS - Draft Environmental Impact Statement

DELCOM - Delay-Line Computer Memory

DEM - Digital Elevation Model

DEMI - Deliverable, Executable Machine Instructions

DES - Data Encryption Standard; Draft Environmental Statement

DETAB - Decision Table

DF - Dissipation Factor

DFAD - Digital Feature Analysis Data

DFC - Denver Federal Center

DFD - Data Flow Diagram; Digital Frequency Discriminator

DGIS - Direct Graphics Interface Standard

DHM - Dynamic Hardware Modeler

DHP - Data Highway Port

DHSFT - Dynamic High Speed Functional Test

DICAP - Direct-Current Circuit Analysis Program

DID - Data Item Description; Direct Inward Dialing

DIDS - Decision Information Display System

DIL - Dual In-Line

DIME - Dual Image Map Encoding System

DIRE - Direct

DISSPLA - Display-Integrated Software System and Plotting Language

DIV - Data-in-Voice

DIX - Digital, Intel, Xerox (Ethernet specifications)

DL - Data Logger

DLE - Desert Land Entry; Differential Linearity Error

DLG - Digital Line Graph (Graphic)

DM - District Manager; Data Memory; Delta Modulation

DMA - Direct Memory Access

DMAI - Direct Memory Access Interface

DMI - Digital Multiplex Interface

DML - Data Manipulation Language

DMOS - Double-Diffused MOS

DMS - Digital Multimeter System; Degree, Minute, Second

DNA - Digital Network Architecture

DNC - Direct Numerical Control

DO - District Office

DOA - Delegation of Authority

DOC - Department of Communications (Canada)

DOD - Department of Defense

DODA - District Office Data Administrator

DOE - Department of Energy

DOI - Department of the Interior

DOP - Design for Optimum Performance

DOS - Disk Operating System

DOT -Department of Transportation; Digital Output Transducer

DP - Data Processing

DPA - Delegation of Procurement Authority

DPCS - Distributed Process-Control System

DPI - Dots Per Inch

DPP - Development Project Proposal

DPR - Digital Process Recorder

DPS8 - Service Center's Large Central Honeywell Computer

DPU - Data Processing Unit

DQ - Data In/Data Out

DRAM - Dynamic Random-Access Memory

DRAW - Direct Read After Write

DRD - Detailed Requirements Definition

DRM - Distributed Real-Time Multiprocessing

DRN - Data Record Number

DRO - Destructive Readout

DS - Data Set; Data Strobe

DSA - Digital Storage Architecture

DSC -Denver Service Center (SC Preferred); Delivered System
        Capability

DSCDA - Denver Service Center Data Administrator (SCDA Preferred)

DSCDBA - Denver Service Center Data Base Administrator (SCDBA
          Preferred)

DSD -   Deputy State Director; Data Security Device; Digital Sharing
         Device;

DSDD - Double-Sided, Double-Density (refers to floppy disks)

DSDM - Digital System Development Methodology

DSDS - Dataphone Switched Digital Service

DSI - Delivered Source Instructions

DSL - Data Set Lead; Delivered Source Lines

DSLOC - Delivered Source Lines of Code

DSR - Data Set Ready

DSU - Digital Service Unit; Data Service Unit

DTACK - Data Transfer Acknowledgement

DTAS - Digital Test Access System

DTE - Data-Terminal Equipment

DT&E - Development Test and Evaluation

DTED - Digital Terrain Elevation Data

DTLCC - Design-to-Life Cycle Cost

DTM - Data Traffic Manager; Digital Terrain Model

DTR - Data Terminal Ready

DUT - Device Under Test

DUV - Data Under Voice

E/EMS - Expanded-/Enhanced-Expanded Memory Specification

E^2PROM -   Electrically Erasable Programmable Read-Only Memory
              (same as EEPROM)

EA - Enviromental Assessment

EAR - Environmental Analysis Report

EAROM - Electrically Alterable Read-Only Memory

EBB - Electric Bulletin Board

EBCDIC - Extended Binary-Coded-Decimal Interchange Code

ECC - Error Checking and Correction

ECP - Engineering Change Proposal

ECS -Extended Character Set; Electronic Communications Systems

ED - Enumeration District

EDA - Electronic Design Automation

EDC - Electronic Digitizing Camera

EDIF - Electronic Design Interchange Format

EDLIN - Line Editor on the DPS8

EDM - Electronic Distance Measuring

EDP - Electronic Data Processing

EEPROM -   Electrically Erasable Programmable Read-Only Memory
           (same as E^2PROM)

EFT - Electronic Funds Transfer

EGA - Enhanced Graphics Adapter

EHF - Extremely High-Frequency

EIA - Electronic Industries Association

EIS - Environmental Impact Statement

EMACS - Text Editor on the Prime

EMC -   Electromechanical Component; Electromagnetic
           Compatibility

EMI - Electromagnetic Interference

EMS -   Electronic Mail System; Electromagnetic Susceptibility;
           Energy Management System

ENDEC - Encoder/Decoder

ENS - Enhanced Network Services

EO - Executive Order

EOC - End of Character

EOM - End of Message; End of Month

EOS - Earth Observation Satellite

EOT - End of Transmission

EOY - End of Year

EPLD - Electrically Programmable Logic Device

EPM - Electronic Printing Machine

EPP - Electrostatic Plotter/Printer

EPROM - Erasable Programmable Read-Only Memory

EPS - Even Parity Set

EQ - Equalizer

ER - Established Reliability

ERTS - Earth Resources Technology Satellite

ES - Environmental Statement;

ESC - Escape

ESDI - Enhanced Small Device Interface

ESO - Eastern States Office

ESS - Electronic Switching System

ETB - End of Transmission Block

ETC - Electronic Telephone Circuit

EU - Execution Unit

EV - Expected Value;

EVM - Evaluation Module

EVPI - Expected Value of Perfect Information

EXEC - Execute
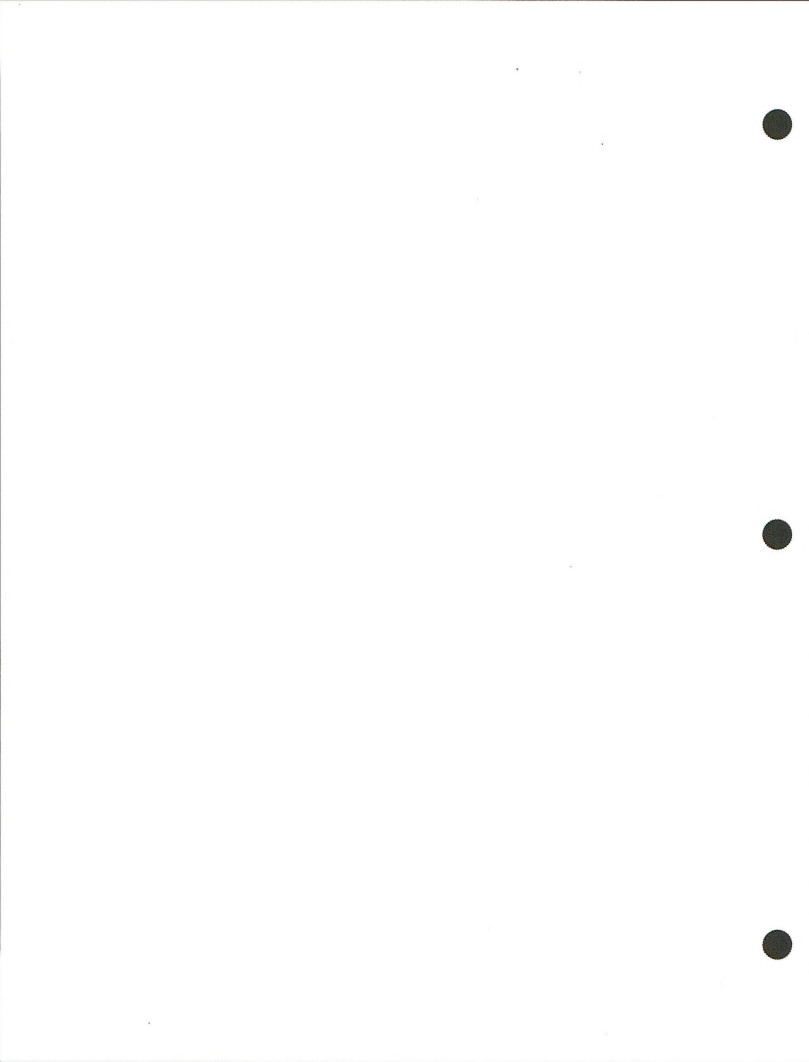
FAA - Federal Aviation Administration

FAR - Federal Acquisition Regulations

FAT - File Allocation Table

FAX - Facsimile Transmission

FCA - Functional Configuration Audit

FCC - Federal Communications Commission

FD - Flag Detect; Follow-Up Date

FDC - Floppy Disk Controller

FDDI - Fiber Distributed Data Interface

FDI - Floppy Disk Interface

FDIC - Floppy Disk Interface Circuit

FDX - Full-Duplex

FE - Framing Error

FEDSIM -   Federal Computer Performance Evaluation and Simulation
             Center

FEIS - Final Environmental Impact Statement

FEP - Front-End Processor

FERC -   Federal Energy Regulatory Commission

FES - Final Environmental Statement; Factor Evaluation System

FET - Field-Effect Transistor

FF - Flip-Flop

FFT - Fast Fourier Transform

FGEF -   Federal Geographic Exchange Format

FIFO - First In, First Out

FILO - First In, Last Out

FIPS - Federal Information Processing Standards

FIPS PUB - Federal Information Processing Standards   Publication

FLPMA - Federal Land Policy and Management Act (of 1976)

FM - Frequency Modulation

FMS - Financial Management System

FONSI - Finding of No Significant Impact

FORTRAN - Formula Translation (Programming Language)

FOSDIC - Film Optical-Sensing Device for Input to Computers

FP - Floating Point

FPR - Federal Procurement Regulations

FQT - Formal Qualificant Test

FRC - Federal Records Center

FROM - Field-Programmable Read-Only Memory

FS - Forest Service (United States Department of Agriculture); File
      Separator; Full-Scale

FSS - Federal Supply Service; Federal Supply Schedule

FT - Full Time; Function Table

FTE - Full-Time Equivalent

FTF - File Transfer Facility

FTP - File-Transfer Protocol

FUA - Frequency Use Agreement

FWS -   Fish and Wildlife Sevice (U.S. Department of the Interior)

FX - Foreign Exchange

FY - Fiscal Year

FYI - For Your Information
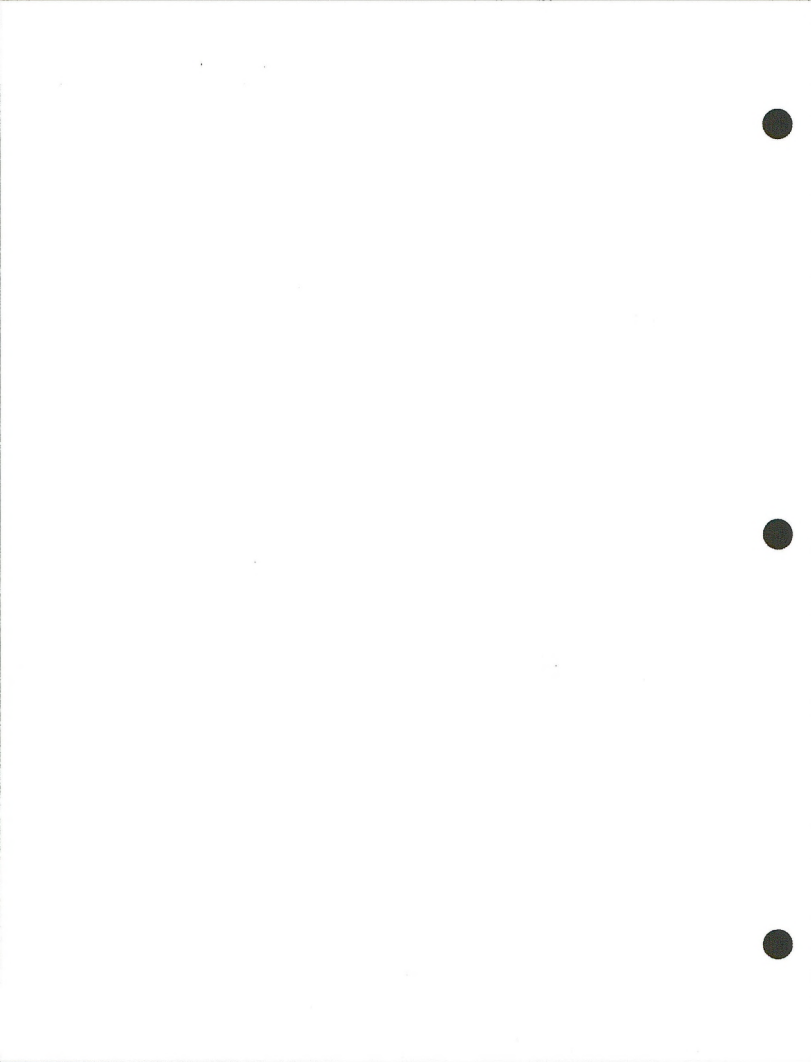
GABS - Grazing Authorization and Billing System

GAO - General Accounting Office

GASP - General Activity Simulation Program

Gb - Gigabyte (1,000 Mb or one billion bytes)

GCDB - Geographic Coordinate Data Base

GDC - Graphic Display Controller

GDS - General Drafting System; Graphics Display Subsystem

GEM - Graphic Environment Manager; Geology-Energy-Minerals Program

GENESYS - General Engineering System

GEOCODE - Geographical Area Identification Code

GEOMAP - Line Printer Mapping System

GEOS - Graphic Environment Operating System

GFE - Government Furnished Equipment

GFI - Government-Furnished Information; Ground Fault Interrupter

GFP - Government Furnished Property

GIRAS - Geographic Information Retrieval and Analysis System

GIS - Geographic Information System; Graphics Instruction Set

GISP - Geographic Information System for Planning

GKS - Graphics Kernal Systems

GLIPS - Billion Logical Inferences Per Second

GLO - General Land Office

GML - Graphic Machine Language

GMR - Graphics Metafile Resource

GND - Ground

GOALS - Goal-Oriented Approach to Life-Cycle Software

GOES - Geostationary Orbiting Earth Satellite

GOR - Gas/Oil Ratio

GOSIP - Government Open System Interconnection Profile

GPS - Global Positioning System (receivers)

GRDSR -   Geographically Referenced Data Storage and Retrieval
           System (Statistics Canada, Ottawa)

GRID - Graphic Display of Rectangular Grid Information

GS - Geological Survey (U.S. Department of the Interior)

GSA -General Services Administration; Gas Storage Agreement;
     Geological Society of America

GSD - General Systems Design

GTR -Government Travel Requisition; Government Technical
     Representative

HAL - Hardwired Array Logic

HASP - Houston Automatic Spooling Processor (Program)

HCDS - High-Capacity Digital Service

HD - High-Density

HDA - Head/Disk Assembly

HDAM - Hierarchical Direct-Access Method

HDC - Hard-Disk Controller; High-Density Connector

HDI - Head-to-Disk Interface

HDLC - High-Level Data Link Control

HF - High-Frequency

HFE - Human Factors Engineering

HFS - Hierarchical File System

HI - Historical Index

HLL - High-Level Language

HMI - Human-Machine Interface Type Project

HML - Hardware Modeling Library

HMOS - High-Performance MOS

HMP - Habitat Management Plan

HOL - Higher Order Language

HP - Hewlett-Packard; High-Pass

HSAM - Hierarchical Sequential-Access Method

HSCC - High-Level Communications Controller

HSD - High-Speed Data

HSDFT - High-Speed Digital Function Testing

HSI - High-Speed Input; High-Speed Synchronous Interface

HSIO - High-Speed Input/Output

HSO - High-Speed Output

HTL - High-Threshold Logic

HVAC - Heating/ Ventilation/ Air-Conditioning

HVDC - High-Voltage Direct Current

HVIC - High-Voltage Integrated Circuit

HVPS - High-Voltage Power Supply

HZ - Hertz (formerly cycles per second)

I - Intermediate Size

I/O - Input/Output

IAMS - Initial Attack Management System

IBC - Intelligent Base Card

IBLA - Interior Board of Land Appeals

IBM - International Business Machines

IC - Integrated Circuit; Input Controller; Inscribed Circle; Internal Connection

ICC-ISDN - Communication Controller

ICD - Interface Control Document

ICE - In-Circuit Emulator

ICL - Interface and Checking Logic

ICN - Information Control Net

ICR - Intelligent Character Recognition

ICS - Incident Command System

ICWG - Interface Control Working Group

ID - Identification

IDA - Intelligent Display Assembly

IDCCC - Interior Department Cartographic Coordinating Committee

IDIMS - Interactive Digital Image Manipulation System

IDN - Integrated Digital Network

IDP - Individual Development Plan; Interdigital Pulse

IDS - Inventory Data System

IDSP - Interactive Digital Signal Processing

IDVS - Interagency Data Verification System

IEEE - Institute of Electrical and Electronics Engineers

IFB - Invitation for Bids

IFIPS - International Federation of Information Processing Societies

IG - Inspector General

IGES - International Graphics Exchange System/Specification

IGP - Independent Graphics Processor

IHICS -   Integrated Habitat Inventory and Classification System

IIF - Information Interchange Format

IISSC - Idaho Information Systems Steering Committee

IKS - Iconic Kernal System

IM -   Information Memorandum; Instruction Memorandum;
       Intermodulation

IMDC - Intelligent Multiple-Disk Controller

IMP - Interface Message Processor; Isolated Measurement Pod

IMPP - Image-Pipelined Processor

IMS - Information Management System; Intelligent Matrix
      Switch

INC - Incidence (or Incidents) of Noncompliance

IOB - Input/Output Buffer

IOP - Input/Output Processor

IORQ - Input/Output Request

IOX - Input/Output Executive

IP - Interface Processor

IPBC - Integrated Personal Business Computer

IPC - Interprogram Communications; Intelligent Peripheral Controller

IPG - In-Circuit Program Generator

IPL - Information Processing Language; Initial Program Load

IPO - Input/Process/Output

IPS - Image Processing System; Inches Per Second

IPU - Integer/Addressing Processor Unit

IR -   Infrared; Input-Ready; Interrogator-Response; Insulation
       Resistance; Interrogator-Response

IRAM - Integrated Random-Access Memory

IRIS - Integrated Raster Imaging System

IRM - Information Resources Management

IRM/TAC - (Obsolete; See IRMAC)

IRMAC -   Information Resources Management Advisory Committee
            (Formerly IRM/TAC)

IRMP - Information Resources Management Plan

IRS - Internal Revenue Service (Department of Justice)

IRUC - Information Resources Users Committee

ISAM - Indexed Search Access Method

ISDN - Integrated Services Digital Network

ISE - In-System Emulation

ISN - Information Systems Network

ISO - International Standards Organization; International Organization for
      Standardization

ISPP - Industry Standard Plotting Package

ISR - Information Systems Review

ISV - Independent Software Vendor

IT - Integration and Test Phase

ITP - Internet Transport Protocol

IV&V - Independent Verification and Validation

JABT - Job Abort

JDR - Job Documentation Reporting System

JMON - Job Monitor

JN - Job Number

JOUT - Job Out

JPL - Jet Propulsion Laboratory

JSTS - Job Status

kA - Kiloampere

KAPSE - Kernel Ada Programming Support Environment

Kb - Kilobyte

kbps - Kilobits Per Second

KDMI - Thousands of Delivered Machine Instructions

KDSL - Thousands of Delivered Source Lines of Code

KEE - Knowledge Engineering Environment

KES - Knowledge Engineering System

kEV - Kiloelectronvolt

KGRA - Known Geothermal Resource Area

KGS - Known Geologic Structure (obsolete)

kHz - Kilohertz

kMC - Kilomegacycle

KRS - Knowledge Retrieval System

KSR - Keyboard Send/Receive

kVA - Kilovolt Amperes

kVAR - Kilovar

kWH - Kilowatt-Hour

L - Large Size

L&M - Lands and Minerals

L-6 - Level-6

LABS - Land Automated Billing System

LAN - Local Area Network

LANCE - Local Area Network Controller for Ethernet

LANDSAT - Land Resource Satellite (Satellite Imagery)

LANG - Programming Language

LAPD - Link Access Protocol D

LAPS - Land Use Inventory and Real Property ADP System

LASER -   Light Amplification by Stimulated Emission of Radiation

LAT/LONG - Latitude/Longitude

LCA - Logic Cell Array

LCC - Life-Cycle Cost

LCD - Liquid Crystal Display

LCDM - Liquid Crystal Display Module

LCF - Logical Control Field

LCM -   Life Cycle Management; Least Common Multiple

LDM - Limited Distance Modem

LDS - Large-Scale Integration Design System

LE - Logic Evaluator

LED - Light-Emitting Diode

Level 6 - BLM State Level Minicomputer

LEXP - Language Experience

LF - Line Feed; Low-Frequency

LFSR - Linear Feedback Shift Register

LGS - Land Graphic System

LIFO - Last In, First Out

LIPS - Logical Inferences Per Second

LIR - Local Interrupt Request

LIS - Land Information System

LISP - List Processing

LL - Lasergraphics Language

LLD - Legal Land Description

LLINK - Little Link

LMU - Logical Mining Unit

LOE - Level of Effort

LOMS - Land Ownership Management System

LOS - Line-of-Sight; Land Ownership Status

LP - Linear Programming; Low-Pass

LPC - Linear Predictive Coding

LPE - Large Processing Element; Liquid-Phase Epitaxy

LPI - Lines Per Inch

LPM - Lines Per Minute

LPT - Longest Processing Time

LPTTL - Low-Power Transistor-Transistor Logic

LQ - Letter Quality

LRC - Longitudinal Redundancy Check

LRCU - Logic and Refresh Control Unit

LRIS - Land Records Information System

LRU - Least Recently Used; Line Replaceable Unit

LS - Low-Speed

LSB - Least Significant Bit

LSD - Least Significant Digit

LSF - Line Spread Function

LSI - Large-Scale Integration; Large-Scale Integrated   Circuits

LSM - Looped-Station Multiplexing

LSP - Least Significant Product; Least Significant Part

LT - Link Table; Local Test

LTD - Live Test Demonstration

LU - Logical Unit

LUDA - Land Use Data Analysis

LUNR - Land Use and Natural Resource Inventory, State of New York

LUT - Lookup Table
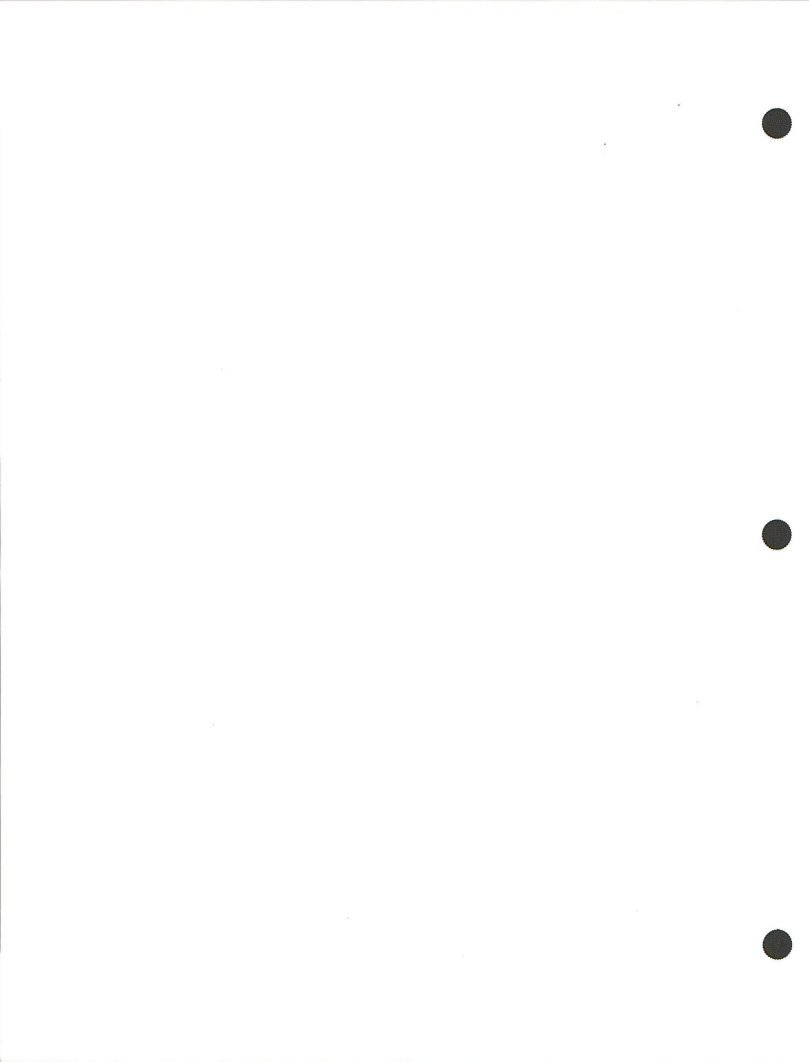
M - Medium Size (32 KDSI)

M/C - Measurement and/or Control

M/D - Maintenance/Development Effort Ratio

M/M - Match/Merge

MAB - Minimum Acceptable Bid

MAC -   Machine-Aided Cognition; Media Access Control; Memory
           Access Controller; Multiplier-Accumulator

MAD - Multiplexed Analog Display

MANS - Map Analysis System

MAPO1 - Line Printer Mapping Program

MAPS - Map Analysis and Processing System

MAPSE - Minimum Ada Programming Support Environment

Mb - Megabyte (one million bytes)

MBM - Magnetic Bubble Memory

MBO - Management By Objectives

MBPS - Megabits Per Second

MC - Mining Claims

MCA - Multiprocessor Communications Adapter

MCB - Molded Circuit Board

MCD - Multichannel Communications Device

MCO - Measured Cut-Off

MCP -   Microcode Programming; Microconcurrent Pascal
           (computer)

MCR - Mining Claim Recordation System (Also MCRS)

MCRS - Mining Claim Recordation System (MCR preferred)

MCS - Master Control Station

MCU - Microcomputer Unit

MD - Make Directory (MS-DOS command)

MDAC - Multiplying Digital-to-Analog Converter

MDBS - Micro Data-Base System

MDF - Master Data File

MDOS - Motorola Disk Operating System

MDS - Microprocessor Development System

MDTS - Modem Diagnostic Test System

MEMRQ - Memory Request

MER - Maximum Economic Recovery

MFP -Management Framework Plan (obsolete; replaced by   Resource
         Management Plan or RMP)

MH - Man-Hour

MHZ - Megahertz

MIADS/MIADS2 - An Alphanumeric Map Information Assembly and
                  Display System

MIB - Microcomputer Interface Board

MIC - Message-Interrupt Controller

MICR - Magnetic Ink Character Recognition

MIL - Military (as in MIL STANDARD)

MIMD - Multiple Instruction/Multiple Data

MIP - Mixed Integer Program

MIPS - Million Instructions Per Second

MIS - Management Information System

MLIPS - Million Logical Inferences Per Second

MLMIS - Minnesota Land Management Information System (State Planning Agency, St. Paul, Minnesota)

MLS - Maximum Life Span

MM - Man-Months

MMI - Man-Machine Interface

MMS - Minerals Management Service (U.S. Department of the Interior)

MN - Master Name

MNV - Marginal Net Value

MODEM - Modulator-Demodulator

MOS - Metal-Oxide Semiconductor

MOSFET - Metal-Oxide Semiconductor Field-Effect Transistor

MOSI - Microprocessor Operating System Interface

MOSS - Map Overlay and Statistical System

MOX - Manually Operated Switch

MPCC - Multi-Protocol Communications Controller

MPU - Microprocessor Unit

MR - Magnetic Resonance; Multiplier Result

MRA - Mineral Resource Assessment

MRC - Memory Recall; Multiple Register Counter

MRI - Mineral Resource Inventory

MRO - Maintenance, Repair, and Operating (or Operation); Monthly Report of Operations System

MRS - Management Reporting and Statistics

MS - Master Space; Mode Select; Modem Splitter

MSA - Management Situation Analysis (part of RMP process)

MSB - Most Significant Bit

MSCP - Mass Storage Control Protocol

MSD - Most Significant Digit; Master Standard Data

MS-DOS - MicroSoft Disk-Operating System

MSG - Maximum Stable Gain

MSI - Medium-Scale Integration; Medium-Scale Integrated Circuits

MSM - Master Station Multiplex

MSP - Most Significant Part; Most Significant Product

MSS - Multi-Spectral Scanner

MTC - Master Terms and Conditions

MTF - Modulation Transfer Function

MTP - Master Title Plat; Micro Thermal Printer

MUX - Multiplexer

MV - Mean Variation

N/A - Not Applicable; Not Available

NA - Numerical Aperture

NAD-27 - North American Datum of 1927

NAD-83 - North American Datum of 1983

NAG - Numeric Algorithms Group

NARA - National Archives and Records Administration

NARIS -   National Resource Information System, University of Illinois

NASA - National Aeronautics and Space Administration

NASAP - Network Analysis for Systems Applications Program

NATA - North American Telecommunications Association

NAU - Network Addressable Unit

NBS - National Bureau of Standards

NCC - National Capital Commission, Ottawa, Canada

NCERI -   National Cultural, and Environmental Resources Inventory of
             Puerto Rico

NCS -   Network Control System

NDAC - No Data Accepted

NDCDB - National Digital Cartographic Data Base

NDI - Nondestructive Inspection

NDOS - Network Disk Operating System

NEPA - National Environmental Policy Act (of 1976)

NEF - Not Elsewhere Found

NF - National Forest

NFS - Network File Server; Network File System

NIA - Notice of Intent to Abandon (a well)

NID - Name Identification Number (Master Name, Case Recordation);
Notice of Intent to Drill

NIOS - Network Input/Output System

NLQ - Near Letter Quality

NLR - Nonlinear Resistance

NLT - Not Later Than

NOA - Notice of Availability

NOAA - National Oceanic and Atmospheric Administration

NOK - Negative Acknowledge

NOS - Network Operating System

NOS/VE - Network Operating System/Virtual Environment

NP - No Parity

NPMS - Nonpowered Modem Sharing Device

NPN - Negative-Positive-Negative (transmission type)

NPS - National Park Service (U.S. Dept. of the Interior)

NRFD - Not Ready For Data

NSR - National Systems Research Company

NSSAD - National Soil Survey Area Data Base

NT - Network Terminator

NTE - Not To Exceed

NTIS - National Technical Information Service

NTL - Notice to Lessee

NV - Net Value

O&C - Oregon and California

O&G - Oil and Gas

O&M - Operating (or Operations) and Maintenance

OA - Office Automation

OB - Operating Budget

OC - Operating Characteristic; Output Controller

OCL - Operator Control Language

OCR - Optical Character Recognition (Reader)

OD - Organizational Development

ODC - Other Direct Costs

OEM - Original Equipment Manufacturer

OEPR - Office of Environmental Project Review

OGOR - Oil and Gas Operations Report

OIG - Office of the Inspector General

OIS - Office of Information Systems; Office Information System (Wang Computer)

OMB - Office of Management and Budget

OPM - Office of Personnel Management

OPS - Operational Planning System; Division of Operations

OPX - Off-Premise Exchange

OQ - Output Queue

OR - Over-Run

ORD - Operational Readiness Demonstration

ORACLE - A data base management system (relational, proprietory)

ORCA -   On-Line Recordation and Case Access (Previously Oregon
            Case Access)

OROM - Optical Read-Only Media

ORV - Off-Road Vehicle

OS - Operating System

OSF - Operating System Firmware

OSHA - Occupational Safety and Health Administration

OSI - Open Systems Interconnection

OSP - Operating System Processor

OTA -Office of Technical Assessment; Output Transformerless Amplifier

PA -   Power Amplifier; Public Address; Program Access Controller

PAAS - Production Accounting and Auditing System

PAD - Packet Assembler/Disassembler

PAO - Product Assurance Office

PARCEL - Parcel Generator

PARD - Periodic and Random Deviation

PAT - Printer Action Table

PAWP - Preliminary Annual Work Plan

PAYPERS - Payroll/Personnel System

PC -   Personal Computer; Printed Circuit; Program Counter;
       Programmable Controller

PCA - Physical Configuration Audit

PCAP - Programmer Capability

PCB - Printed-Circuit Board; Program Communication Block

PCC - Plastic Chip Carrier

PCCS - Public Land Survey System Coordinate Computational System

PCI - Proprietary/Confidential Information

PCO - Principal Contracting Officer

PCSA - Personal Computer Structured Analysis

PD - Public Domain; Pulse Doppler

PDA - Percent Defective Allowable

PDDS - Potential Drainage Detection System

PDEIS - Preliminary Draft Environmental Impact Statement

PDL - Program Design Language

PDR - Preliminary Design Review

PE - Parity Error; Phase Encoded; Processing Elements; Professional Engineer

PERT - Performance Evaluation and Review Technique

PF - Power Factor; Program Function

PGA - Pin-Grid Array

PHIGS - Programmers' Hierarchical Interactive Graphics Standard

PI - Petroleum Information; Project Inspector (Contracts); Points of Intersection (Survey)

PI/T - Parallel Interface Adapter

PIA - Peripheral Interface Adapter

PIC - Priority Interrupt Controller; Programmable Interrupt Controller

PID - Proportional, Integral, and Derivative

PIF - Picture Information Format

PINO - Positive Input, Negative Output

PIO - Processor Input/Output

PIOS - Polygon Information Overlay System

PL - Public Law

PLA - Programmable Logic Array

PLO - Public Land Order(s)

PLS - Public Land Statistics

PLSS - Public Land Survey System

PM - Preventative Maintenance; Phase Modulation; Pulse Modulation

PMD - Programmable Message Display

PMR - Program Management Review

PNP - Positive-Negative-Positive (transistor type)

PO - Project Office

POD - Plan of Development

POS - Point of Sale

POSIX - Portable Operating System for Computer Environments

PP - Delivered Pages of Documentation

PPB - Parts Per Billion

PPBS - Program Planning and Budgeting System

PPD - Prompt Payment Discount

PPM - Parts Per Million

PRIA - Public Rangelands Improvement Act

PRIME - GIS State Office - Level Computer

PRIMEX or PRIMIX - Prime Version of UNIX Operating System

PRIMOS - PRIME Computer Operating System Language

PRLA - Preference Right Lease Application

PROM - Programmable Read-Only Memory

PSC - Power-Supply Card

PSI - Pounds Per Square Inch; Printer Sharing Interface

PSP - Physical Security Plan

PTC - Phoenix Training Center

PTD - Parallel Transfer Disk

PU - Planning Unit

PWA - Project Work Authorization

PWR - Power

PYBP - Program Year Budget Package

QA - Quality Assurance

QAM -   Quality Assurance Management; Quality Assurance Manager

QBE - Query-by-Example

QC - Quality Control

QCID - Quality Control Inspection Identification

QIC - Quarter-Inch Cartridge

QISAM - Queued Indexed Sequential Access Method

QPRD - Quality Planning Requirements Document

QSAM - Queued Sequential Access Method

QT - Quick Test

QTAM -   Queried Telecommunications Access Method (same as
            QTCAM)

QTCAM - See QTAM above
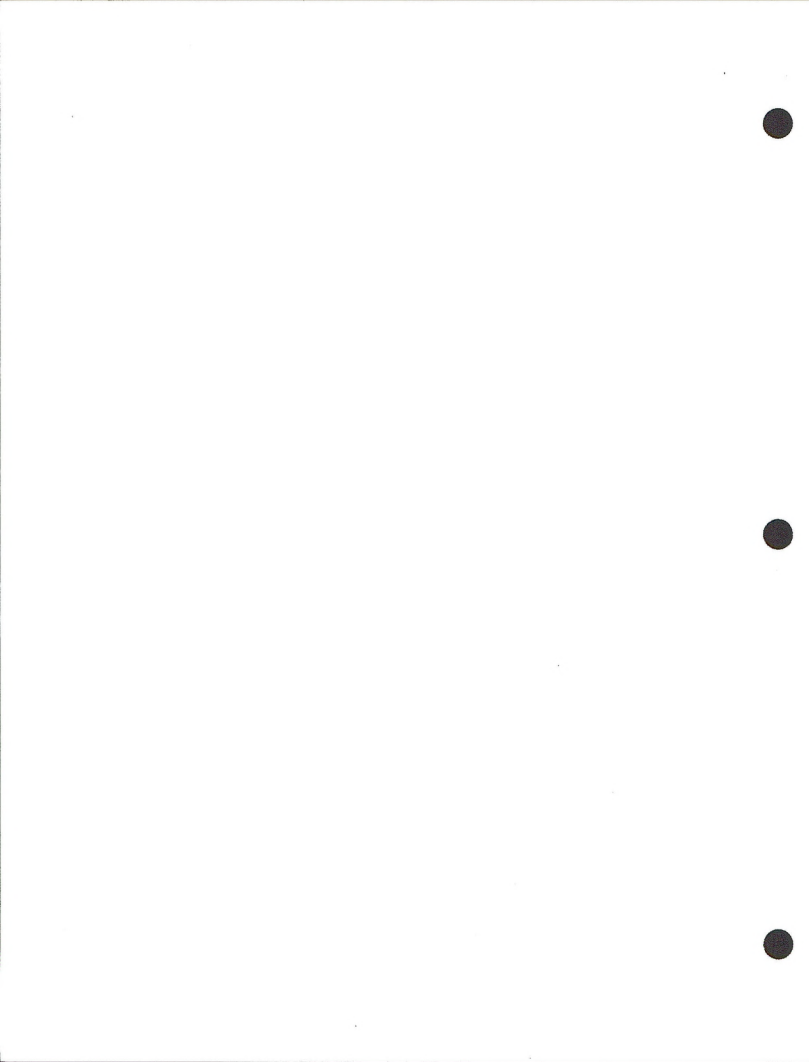
R&D - Research and Development

R&DM - Records and Data Management

R/W - Right-of-Way (same as ROW)

RA - Resource Area

RAH -Resource Area Headquarters; Row-Address Hold;
RAID - Riparian Aquatic Information Data Summary

RAM - Random Access Memory

RAMP - Recreation Area Management Plan

RAWS - Remote Automatic Weather Station

RCI - Roadway Characteristics Inventory

RCV - Receive

RD - Remove Directory (an MS-DOS command); Receive Data

RDBMS - Relational Data Base Management System

REACT - Remote Access and Test

RELAN - Reliability Analysis Program

RELE - Release

RELY - Required Software Reliability

RETARS - Remote Entry T&A Reporting System

RFB - Request for Bid

RFC - Request for Comment

RFE - Request for Estimate

RFI - Request for Information

RFP - Request for Proposal

RFQ - Request for Quotation

RFS - Remote File System

RGB - Red, Green, and Blue

RGBS - Red, Green, Blue, and Sync

RGP - Raster Graphics Processor

RHDP - Right-Hand Decimal Point

RI - Resource Inventory

RIDS - Resource Inventory Data System

RIP - Records Improvement Project (or Program); Raster Image Processor

RIPS -   Rangeland Improvement Project System; Resident Image Processing Software; Remote Image Processing System

RIS - Road Inventory System; Resource Information System

RJE - Remote Job Entry

RM - Remedial Maintenance

RMAS - Range Management Automated System

RMP - Resource Management Plan

RMS - Records Management System (Specialist)

RO - Receive Only

ROD - Record of Decision

ROM - Read-Only Memory

ROS - Read-Only Store

ROW - Right-of-Way (same as R/W)

RP/ED - Rapid Prototyping/Evolutionary Design Approach

RPC - Remote Power Controller

RPD - Requirements and Product Design Phase

RPG - Report Program Generator or Generation

RPM - Revolutions Per Minute

RPS - Revolutions Per Second

RSS - Relational Storage System

RT - Real Time

RTI - Real-Time Interrupt

RTOS - Real-Time Operating System

RTS - Request to Send

RTSS - Real-Time Spread Sheet

RTU - Remote Terminal Units

RVM - Requirements Verification Matrix

RWALK - Random Walk in CR/ORCA

RWM - Read/Write Memory

RWS - Read/Write Storage

RZ - Return-to-Zero

S - Small Size

S&D - Survey and Design

S/N - Signal/Noise

S/W - Software (same as SW)

SA - Structured Analysis

SABS - Simplified Automated Billing System

SASD - Special Assistant to the State Director

SASEM - Simple Approach Smoke Estimation Model

SBA - Small Business Administration

SBB - System Building Block

SBC - Single-Board Computer

SC - Service Center

SCDA - Supervisory Control and Data Acquisition

SCD -Service Center Director; Specification Control Drawing

SCDA - Service Center Data Administrator

SCDBA - Service Center Data Base Administrator

SCI - Serial Communications Interface

SCM - Standardized Control Module

SCS -Soil Conservation Service

SCSI - Small Computer System Interface

SD - State Director

SDD - System Description Document

SDLC - Systems Development Life Cycle

SDM - System Data Module

SDN - Software Design of Networks

SDR - System Design Review

SDS - Software Development System

SEN - Software Engineering Notebook

SEPI - Shaft Encoder Peripheral Interface

SEU - Single-Event Upset

SF - Special Function (Keys)

SHPO - State Historic Preservation Officer

SIC - Standard Industrial Code

SIO - Serial Input/Output

SIP - Software Improvement Plan

SIPO - Serial In, Parallel Out

SISD - Single Instruction, Single Data (stream)

SITE PREP -   Site Preparation Requirement and Equipment
                   Installation Plan

SLA - Switch-Level Array; Special Libraries Association, Geography and
       Map Division, Committee on Map Cataloging

SLAVE - Symbolic Layout Verification and Extraction

SLMS - Solid Leasable Minerals System

SN - Serial Number; Signal-to-noise

SNA - Systems Network Architecture

SNR - Signal-to-Noise Ratio

SNUMB - System Number

SO - State Office; Serial Output

SODA - State Office Data Administrator

SOM - Start of Message

SON - Statement of Need

SOP - Standard Operating Procedure

SOW - Statement of Work

SP - Strategic Plan

SPC - State Plane Coordinate; Signal-Processor Controller; Statistical Process Control; Stored Program Control

SPD - Signal-Processing Display

SPDT - Single-Pole, Double-Throw

SPL - Sound-Pressure Level

SPOT - European Commercial Satellite for the Observation of the Earth

SPP - Source Program Preprocessor

SPR - Software Problem Report

SQA - Software Quality Assurance

SQC - Statistical Quality Control

SQL - Structured Query Language

SR - Shift Register

SRAM - Static Random-Access Memory

SRP - Serial Register Page

SRR - Software Requirements Review

SSL - Software Specification Language

ST&E - Security Test amd Evaluation

STDB - Standard Test Data Base

STF - Summary Tape File

STP - Standard Temperature and Pressure

STPS - Standby Power Supply; Summary Task Planning Sheet

STX - Start of Text

SUP - Support Software Type Project

SVIM - Soil Vegetation Inventory Method

SVP - Surge Voltage Protector

SW - Software (same as S/W)

SWR - Standing Wave Radio

SYS - Systems Software Type Project

SYSCAP - System of Circuit Analysis Program

T&BI - Test and Burn-In

T&E - Threatened and Endangered (species)

T&R - Township and Range

T/E - Threatened and/or Endangered Species

TAB - Tape-Automated Bonding

TAD - Telephone Answering Device

TAM - Test Area Manager

Tb - Terabyte (one trillion bytes)

TBD - To Be Determined

TBR -To Be Resolved

TCAM - Telecommunications Access Method

TDD - Telecommunications Devices for the Deaf

TEDS - Threatened and Endangered Data System

TELEX - Teleprinter Exchange

TGS -Technicolor Government Services (former corporate name whose
         corporate name is now just the acronym, TGS)

THZ - Terahertz

TI&E - Tract Trade Inspection and Enforcement

TID - Touch Information Display

TIDAL - Transportable Integrated Design-Automation Language

TIGER -   Topologically Integrated Geographically Encoded Record;
             Transitional Integrated Geocordinate and Records System

TLD - Terminal Locking Device

TLSI - Terminal/Line Sharing Interface

TLV - Threshold Limit Values

TM - Thematic Mapper

TMA - Transportable Meta-Assembler

TMU - Test and Measurement Unit; Time Measurement Unit

TOP - Technical Office Protocol

TP - Transactional Processing; Township

TPI - Total Performance Index; Tracks Per Inch

TPS - Test Program Set

TQAE - Technical Quality Assurance Evaluator

TQC - Total Quality Control

TR - Transmit-Receive

TRA - Test Requirements Analysis

TS - Time Sharing

TSO - Time-Sharing Option

TSP - Technical Support Package

TSS - Time Share (Sharing) System; Technical Support Services

TTY - Teletypewriter

TURN - Computer Turnaround Time

TWA - Time-Weighted Average

UA - Unitization (Unit) Agreement

UADPS - Uniform Automated Data-Processing System

UDLC - Universal Data Link Control

UHF - Ultra - High Frequency

UL - Underwriters Laboratories

ULSI - Ultra-Large-Scale Integration

UMC - User Master Catalog

UNIX -   Trade name with no translation; an operating system
            developed by Bell Laboratories in the late 1960's.

UPC - Universal Product Code (bar code)

UPS - Uninterruptible Power Supply

URA -User Requirements Analysis; Unit Resource Analysis (obsolete
     BLM planning methodology replaced by RMP, MSA)

URD - User Requirements Document

URI - Universal Runtime Interface

US - Unit Separator

USASCII -   United States of America Standard Code for Information
            Interchange

USER ID - User Identification

USFS -   United States Forest Service (U.S. Department of
            Agriculture) [See also FS]

USGS -   United States Geological Survey (U.S. Department of the
            Interior)

UTC - Universal Time Code

UTM - Universal Transverse Mercator

UTPS - Urban Transportation Planning System

UTS - Unit Test Station

UUT - Unit Under Test

UV - Ultraviolet

UWS - User Workstation

V&V - Verification and Validation

VAC - Volts-Alternating Current

VAT - Vendor Acceptance Test

VCR - Video Cassette Recorder

VDC - Volts-Direct Current

VDG - Video Display Generator

VDI - Video Device Interface

VDT - Video Display Terminal

VE - Value Engineering

VFU - Vertical Format Unit

VGA - Video Graphics Adapter

VHF - Very-High Frequency

VHLL - Very High Level Language

VIABLE - Vertical Installation Automation Baseline

VIS - Vehicular Intercom System

VIVED - Virtual Visual Environment Display System

VIX - Very Intelligent Unix (system)

VLSI - Very Large Scale Integration

VLT - Video Lookup Table

VM - Virtual Machine

VM/CMS - Virtual Machine/Conversational Monitor System

VM/PC - Virtual Machine/Personal Computer

VOM - Volt-Ohmmeter

VOX - Voice-Operated Transmit

VRAM - Video Random Access Memory

VRM -   Visual Resource Management; Voice Recognition Module

VS - Virtual Storage (Wang Computer); Vertical Sync

VT - Virtual Terminal

VTL - Variable-Threshold Logic

VTM - Vocal Tract Model

VTR - Video Tape Recording

WAN - Wide Area Network

WATS - Wide Area Telephone Service

WBMP - Wild Burro Management Plan

WBS - Work Breakdown Structure

WHMP - Wild Horse Management Plan

WIS - Wildlife Information System

WM - Work Month

WO - BLM Washington Office Headquarters

WODDB - Western Oregon Digital Data Base

WORDS - Wildlife Observation Report Data System

WP - Word Processor (Processing)

WPM - Words Per Minute

WSA - Wilderness Study Area

XAT - External Attribute

XCPL - Experimental Concurrent Programming Language

XMIT/XMT - Transmit

Xon/Xoff - Transmitter On/Transmitter Off

XT - Extended Technology

XTAL - Crystal

XTEN - Xerox Telecommunications Network

ZD - Zero Defects

ZTAT - Zero Turnaround Time

Review Date: __/__/__
Reviewers Name: _____

DOCUMENT REVIEW FORM

Serial Number: _____

Document Name: _____ Project Glossary: |____|
Date : _____

Page Number: _____

Evaluation Criteria:

1 Organization |____| |____| 1.1 Order |____| 1.2 Duplication |____| 1.3 XRef |____| 1.4 Equa Separ

2 Correctness |____| |____| 2.1 True |____| 2.2 Accurate |____| 2.3 Design

3 Consistency |____| |____| 3.1 Term Use |____| 3.2 Titles |____| 3.3 Conflict

4 Clarity |____| |____| 4.1 Clear |____| 4.2 Understood |____| 4.3 Style |____| 4.4 Typos

5 Completeness |____| |____| 5.1 All L & M |____| 5.2 All BLM

6 Feasibility |____| |____| 6.1 Attainable

7 Testability |____| |____| 7.1 Inspectible

Problem Description:

_____
_____
_____
_____
_____

Corrective Action:

_____
_____
_____
_____
_____
_____
_____
_____

Corrective Action: __/__/__

DRF 06/10/88 (1A)

Serial Number:

DOCUMENT REVIEW FORM

Review Date: __/__/__
Reviewers Name: _____

Document Name, Project Glossary: |___|
Date : _____

Page Number: _____

Evaluation Criteria: _____
1 Organization |___| 1.1 Order |___| 1.2 Duplication |___| 1.3 That |___| 1.4 Rqmt Separ

2 Correctness |___| 2.1 True |___| 2.2 Accurate |___| 2.3 Design

3 Consistency |___| 3.1 Term Use |___| 3.2 Titles |___| 3.3 Conflict

4 Clarity |___| 4.1 Clear |___| 4.2 Understood |___| 4.3 Style |___| 4.4 Typos

5 Completeness |___| 5.1 All L & M |___| 5.2 All BLM

6 Feasibility |___| 6.1 Attainable

7 Testability |___| 7.1 Inspectible

Problem Description:

_____
_____
_____
_____

Corrective Action:

_____
_____
_____
_____
_____
_____

Date of Corrective Action: __/__/__